hp LaserJet family
quick reference
service guide

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HP LaserJet Family
Quick Reference
Service Guide

Volume III

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Contents

Ordering other manuals

The *HP LaserJet Quick Reference Service Guide,* volume III, provides support for newer monochrome printers (see the following page for a complete list of supported printers). It has been created to help the HP LaserJet service engineer quickly troubleshoot common printer problems.

For older monochrome printers, see the *HP LaserJet Quick Reference Service Guide,* volume II. It provides support for the following printers: LJ Companion, LJ 1100, LJ 1100XI, LJ 1100SE, LJ 1100A, LJ 1100AXI, LJ 1100ASE, LJ 2100, LJ 2100M, LJ 2100TN, LJ 3100, LJ 4000, LJ 4000T, LJ 4000N, LJ 4000TN, LJ 4050, LJ 4050T, LJ 4050N, LJ 4050TN, LJ 5000, LJ 5000N, LJ 5000GN, LJ8000, LJ 8000N, LJ 8000DN, LJ 8100, LJ 8100N, LJ 8100DN.

Or, see the *HP LaserJet Quick Reference Service Guide,* volume I. It provides support for the following printers: LJ 6L, LJ 5Si Mopier, LJ 5Si, LJ 5Si MX, LJ 5L, LJ 6P, LJ 6MP, LJ 5P, LJ 5MP, LJ 5, LJ 5M, LJ 5N, LJ 4V, LJ 4MV, LJ 4P, LJ 4MP, LJ 4L, LJ 4ML, LJ 4+, LJ 4M+, LJ4, LJ 4M, LJ 4Si, LJ 4Si MX, LJ IIISi, LJ IIIP, LJ IIP+, LJ IIP, LJ IIID, LJ III, LJ IID, LJ II, LJ 2686D, LJ 2686A.

To obtain service support for HP LaserJet 240 and 320 Mopiers, see the *HP Mopier Family Quick Reference Service Guid*e.

While the quick reference guides are intended to provide all the information the service engineer will need for onsite repair of HP products, they are not intended to replace the service manual for any HP LaserJet product. For detailed information about the HP LaserJet products described in this guide, see the user guide or service manual for that product.

Service manuals for HP LaserJet products are available from Hewlett-Packard. The phone number for the Service Parts Order Desk is:

(800) 227-8164 (U.S. only)

If you are located outside of the U.S., contact your local HP Sales and Service office.

Supported products

Reference name used in this guide	Model number	Maximum pages per month (printer)	Service manual part number
LJ 1200 LJ 1200SE LJ 1200N LJ 1220 LJ 1220SE	C7044A C7047A C7048A C7045A C7049A	10 K	C7044-90906
LJ 2200D LJ 2200DT LJ 2200DN LJ 2200DTN LJ 2200DSE	C7058A C7059A C7063A C7061A C7062A	40 K	C7058-90936
LJ 3100 LJ 3150	C3948A C4256A	6 K	C4256-90954
LJ 3200 LJ 3200SE LJ 3200M	C7052A C7053A C7055A	10 K	C7052-90930
LJ 4100 LJ 4100N LJ 4100TN LJ 4100DTN	C8049A C8050A C8051A C8052A	150 K	C8049-90925

Note

This guide is updated on a regular basis as the service needs change, as new products are introduced, and as additional information becomes available.

1 Control-panel messages

Chapter contents

Overview of printer messages

This chapter provides information about the control-panel lights for the HP LaserJet 1200 and 2200 Series printers.

This chapter also lists control-panel messages for these HP LaserJet printers:

- LJ 3100 series
- LJ 3150 series
- LJ 3200 series
- LJ 4100 series

Alphabetical messages are listed first, followed by numerical messages. Control-panel messages that are self-explanatory are not included.

If you need more detailed information, see the service manual for the printer you are servicing.

LaserJet 1200 Series printer control-panel light messages

Each control-panel light message is listed, along with possible causes and steps to resolve identified errors.
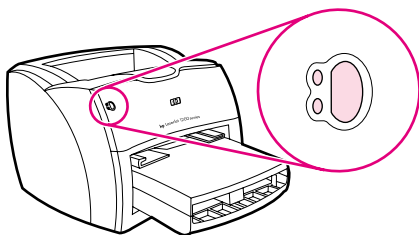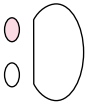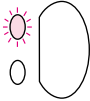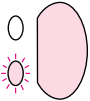

Figure 1   Control panel location

Control-panel lights legend
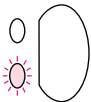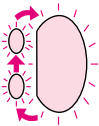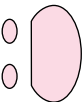
Light symbol	Meaning of symbol
○	Light off
○	Light on
☀	Light blinking

Control-panel light messages
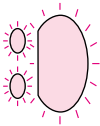
Message	Possible causes	Solutions
	The printer is ready to print.	No action is needed. To print a self-test page, press and release the **Go** button on the control panel.
	The printer is receiving or processing data.	Wait for the job to print.
	The printer is in manual feed mode.	To turn off the manual feed mode, change the printer property setting.
	The printer is out of memory.	1. The page currently printing might be too complex for the printer memory. To continue printing, press and release the **Go** button. The printer might print a partial page, or the quality might be lower than normal. 2. Print at a lower resolution. 3. Add more memory.

Control-panel light messages (continued)

Message	Possible causes	Solutions
	The printer has an error. The door is open, the media is out, the toner cartridge is installed incorrectly, or the media is jammed.	1. Check that the toner cartridge door is completely closed. 2. Load media into the correct input tray. 3. Check that the toner cartridge is correctly installed in the printer. 4. Clear any jam. 5. Check that the door and toner cartridge interlocks are operating correctly.
	A printer initialization is taking place. All lights blink for a half second or longer in a sequence for one of the following reasons: • The printing is initializing. • All previously sent print jobs are being deleted from the printer memory. • A cleaning page is printing.	No action is necessary.
	The printer has a fatal error. All lights are on.	1. Turn the printer off and back on. 2. Unplug the printer for 5 minutes, plug it back in, and turn it on. 3. If the printer still has an error, press the **Go** button.

Message	Possible causes	Solutions
	The printer has an accessory error. All lights are blinking.	1. Remove the DIMM and reseat it. 2. If the printer still has an error, replace the DIMM.

Fatal error secondary messages
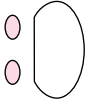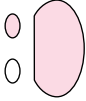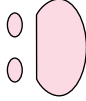
If the printer has a fatal error, press and hold the **Go** button to see the secondary error message.

Fatal error secondary messages
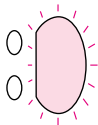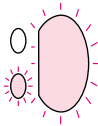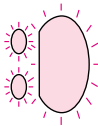
Message	Cause	Solution
	Engine error. The formatter and engine are not communicating.	1. Unplug the printer and plug it back in. 2. Reseat the formatter-to-ECU cable. 3. Replace the formatter PCA. 4. Replace the ECU.
	Beam error.	1. Check the laser/scanner cable connections. 2. Replace the laser/scanner.

Fatal error secondary messages (continued)

Message	Cause	Solution
	Laser/scanner/beam detect error.	1. Check the ribbon connector and four wire connector at the top of the formatter PCA. 2. Replace the laser/scanner. 3. Replace the formatter PCA.
	Fuser error. The fuser has a malfunction.	1. Unplug the printer and do not plug it back in for at least ten minutes. 2. Verify that the fuser connector and the thermistor connector are both firmly seated in the ECU. 3. Perform a heating-element resistance check. 4. If the resistance readings are correct and the error persists, replace the fuser.
	Formatter internal RAM or ROM error. The RAM or ROM has an error.	1. Unplug the printer and plug it back in. 2. Unplug the printer, remove any optional memory, and turn the printer back on. 3.Check the formatter cable connections. 3. Replace the formatter PCA.

1

Fatal error secondary messages (continued)

Message	Cause	Solution
	Scan buffer error.	1. Unplug the printer, remove and reattach the optional copier/scanner, and then plug the printer back in. 2. Replace the optional copier/scanner.
	Miscellaneous interface error.	1. Unplug the printer, remove and reattach the optional copier/scanner, and then plug the printer back in. 2. Replace the optional copier/scanner.
	General fatal error.	1. Unplug the printer and plug it back in. 2. Disconnect the I/O cable and print a self-test page. If the self-test is successful, reconnect the I/O cable. 3. If the error persists, replace the formatter PCA.

LaserJet 2200 Series printer control-panel light messages
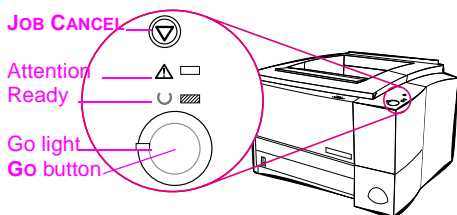
Figure 2   Control panel layout

Light patterns provide status and error messages. The lights can be in any one of the following states:
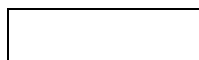
Off   **On**   **Blinking**

Figure 3   Light states

The following control-panel light patterns indicate various conditions of the printer in preparation for, or during, printing. If the Attention light is blinking, the printer is experiencing an error. The messages are grouped according to error type: status, attendance, continuable, fatal, and accessory errors. In many cases, the error provides specific information about the defective component.
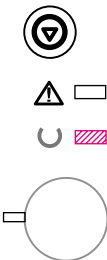
If the printer lights indicate a continuable, fatal, or accessory error, press **GO** and **JOB CANCEL** simultaneously to display additional error information. The lights flash briefly to indicate transitions in error states before displaying the next pattern. Secondary information about 79 fatal errors (unrecoverable firmware errors) is not included in this document. If a 79 fatal error occurs, replace the formatter.

Primary status codes

Control-panel light pattern	Primary status message	Recommended action
	Start-up. The Go, Ready, and Attention lights cycle one after another.	• No action is needed. **Note** Pressing **Go** or **JOB CANCEL** has no effect until the printer is ready.
	Ready. The Ready light is on and the printer is ready to print.	• No action is needed. **Note** Pressing **Go** prints a demo page.

Primary status codes (continued)

Control-panel light pattern	Primary status message	Recommended action
	Processing.The printer is receiving or processing data.	• No action is needed. **Note** Pressing **JOB CANCEL** cancels the current job. One or two pages might print as the printer clears the print job. The printer returns to the Ready state after the job is cancelled.
	Attention. The printer requires attention for one of the following reasons: - a door is open - the toner cartridge is missing - print media is jammed in the printer - the media supply is depleted	• Check for jams in the: input area, fusing area, and duplex bin. **Note** to check the duplex bin, remove tray 2 and pull the green tab to view the duplex holding area. • Pressing **Go** causes the printer to attempt to clear the jam. It might be necessary to clear the jam manually and push **Go** or close the top cover.

Continuable, fatal, and accessory errors

Additional information in the form of a secondary error message is available for each of the following three types of errors:

- Continuable errors
- Fatal errors
- Accessory errors

The first entry in each of the following tables shows the primary error light pattern. The remaining entries illustrate the secondary error messages. The tables also contain information that typically appears in the status log area of the self-test/configuration page.

Continuable attention error codes

Control-panel light pattern	Continuable attention error message	Action
	Continuable error, or tray 1 is out of media. Pressing **Go** causes the printer to attempt to recover from the error and print whatever it can. If the recovery is unsuccessful, the printer will return to the continuable error state.	- Press **Go** to attempt an error recovery and continue printing. - If the error persists, press **Go** and **JOB CANCEL** simultaneously to view the secondary continuable error information.

Continuable attention error secondary codes

Control-panel light pattern	Continuable attention error secondary message	Recommended action
	General continuable error	• Verify that all of the power-supply wire harness connections are connected correctly and fully seated. • Replace the formatter PCB. • Replace the engine controller.
	Memory overflow/ memory full (20) Status log code: 30016	• The printer memory is full. Press **Go** to resume printing. If you lose data, try to free some printer memory by removing any unnecessary fonts, macros, or any other data currently in the printer memory. If you continue to lose data, you might need to add more printer memory. For a temporary solution, simplify the image, or print at a lower resolution.

Control-panel light pattern	Continuable attention error secondary message	Recommended action
	Temporary engine error (41.x) Status log code: 30034	• Press **Go**. The page containing the error will be printed. • If the error persists, reseat the connections to the laser/scanner, formatter, and engine controller. • Replace the laser/ scanner. • Replace the formatter. • Replace the engine controller.
	Print overrun (21) Status log code: 30017	• The print job was too complex for available printer memory. Press **Go** to resume printing. If you lose some data, you might need to add more printer memory. For a temporary solution, simplify the image or print at a lower resolution.

Continuable attention error secondary codes (continued)

Control-panel light pattern	Continuable attention error secondary message	Recommended action
	Buffer flow error (22) Status log code: 30027	• Verify that the printer cable is connected properly and fully seated at connections. Always use a high-quality cable. Some non-HP cables might be missing pin connections or might otherwise not conform to IEEE-1284 specifications. • Replace the formatter.
	Bad connection (40) Status log code: 30018	• The connection between the printer and the EIO card is bad. • Press **Go** to clear the error message and continue printing. • If the error message persists, turn the printer off and reset the EIO card. Turn the printer on. • Replace the EIO card.

1

Continuable attention error secondary codes (continued)

Control-panel light pattern	Continuable attention error secondary message	Recommended action
	NVRAM error (68) Status log code: 30035 or 30036	- A memory error resulted in one or more printer settings being reset to factory defaults. - Print a configuration page and verify that the printer setting are set correctly. - Turn the printer off. Press and hold **JOB CANCEL** and turn the printer on. Keep **JOB CANCEL** depressed until all of the control-panel lights illuminate. Release **JOB CANCEL** and send the print job again. - Replace the formatter.
	I/O error (81)	- The EIO accessory has encountered a critical error. - Turn the printer off and then on. - If the error message persists, turn the printer off and reset the EIO card. Turn the printer on. - Replace the EIO card.

Continuable attention error secondary codes (continued)

Control-panel light pattern	Continuable attention error secondary message	Recommended action
	Memory configuration error	• Perform a cold reset. **Note** If both the Attention and Ready lights come on before you release **Go**, then you must repeat the procedure. • If the error persists, remove or replace DIMM(s). • Replace the formatter.
	Personality or job-related error Status log code: 30076	• Perform a cold reset. **Note** If both the Attention and Ready lights come on before you release **Go**, then you must repeat the procedure. • If the error persists, remove or replace the language DIMM. • Replace the formatter.

Continuable attention error secondary codes (continued)

Control-panel light pattern	Continuable attention error secondary message	Recommended action
	EIO port error	• Turn the printer off and reseat the EIO accessory. Turn the printer on. • Replace the formatter.
	DIMM slot 1 incompatible error	• Turn the printer off. Reseat DIMM 1. Turn the printer on. • If the problem persists, replace DIMM 1. • Replace the formatter.

Continuable attention error secondary codes (continued)

Control-panel light pattern	Continuable attention error secondary message	Recommended action
	DIMM slot 2 incompatible error	• Turn the printer off. Reseat DIMM 2. Turn the printer on. • If the problem persists, replace DIMM 2. • Replace the formatter.

Fatal error codes

Control-panel light pattern	Fatal error message	Recommended action
	The printer has experienced an error and cannot recover. All the lights are on.	• View the fatal error secondary codes. • To clear the error, turn the printer off, and then turn it on. If the error persists, turn the printer off for 15 minutes, and then turn it on. **Note** Pressing **Go** and **Job Cancel** shows the fatal secondary error codes.

Fatal error secondary codes

Control-panel light pattern	Fatal error secondary message	Recommended action
	General fatal error (79)	• Turn the power off and back on. • If the error persists, turn off the power. Remove all accessories (for example, DIMM, EIO card). Turn on the printer. • Replace the formatter. • Replace the engine controller. • Replace the power supply.
	Engine communication error (55) Status log code: 40055	• A printer error has occurred. Press **Go** to clear the error message. • Check the connections to the formatter and the engine controller assembly. • Replace the formatter. • Replace the engine controller. • Replace the power supply.

Fatal error secondary codes (continued)
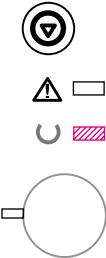
Control-panel light pattern	Fatal error secondary message	Recommended action
	Scanner error (52) Status log code: 40052	• Press **Go**. The page containing the error will automatically be reprinted. • Turn the printer off and reseat the laser/ scanner cables. • Replace the laser/ scanner.
	Bad beam detect error (51) Status log code: 40051	• Press **Go**. The page containing the error will automatically be reprinted. • Turn the printer off and reseat the laser/ scanner cables. • Replace the laser/ scanner.
	Scan motor error (57) Status log code: 40057	• Turn the power off and back on. • If the error persists, turn the printer off, reseat the connection between the laser/scanner assembly and the engine controller. Turn the printer on. • Replace the laser/ scanner. • Replace the engine controller.

Control-panel light pattern	Fatal error secondary message	Recommended action
	Bad fuser error (50) Status log code: 40050	• Be sure that the fuser is installed correctly and that it is fully seated. • Reseat the fuser cables. • Replace the fuser. • Replace the engine controller assembly. • Replace the power supply.
	Formatter internal RAM or ROM error	• Turn the printer off, and then turn it back on. • Replace the formatter.
	Fan motor error (58) Status log code: 40058	• Turn the printer off, and then turn it back on. • Turn the printer off, and then reseat the connection between the fan and the formatter. • Replace the fan. • Replace the engine controller assembly.

Fatal error secondary codes (continued)

Control-panel light pattern	Fatal error secondary message	Recommended action
	NVRAM error (68)	• Turn the printer off, and then turn it back on. • Replace the formatter.
	Scan buffer error (64) Status log code: 40064	• Turn the printer off, and then turn it back on. • If the message persists, replace the formatter.
	RAM controller error (65) Status log code: 40065	• Turn the printer off, and then turn it back on. • Replace the formatter.

1

Fatal error secondary codes (continued)

Control-panel light pattern	Fatal error secondary message	Recommended action
	Miscellaneous interface hardware error (67) Status log code: 40067	• Check the I/O connections. • Verify that the cable is IEEE-1284 compliant (if applicable).

Accessory error codes

Control-panel light patterns	Accessory error message	Recommended action
	An error has occurred with either the EIO port or the DIMM (memory) slots.	• Press **Go** and **JOB CANCEL** simultaneously to view the secondary information.

Accessory errors secondary codes

Control-panel light patterns	Accessory secondary error message	Recommended action
	EIO port error	• Turn the printer off and reseat the EIO accessory. Turn the printer on. • Replace the formatter.
	DIMM slot 1 incompatible error	• Turn the printer off. Reseat DIMM in slot 1. Turn the printer on. • If the problem persists, replace the DIMM in slot 1. • Replace the formatter.

Accessory errors secondary codes (continued)

Control-panel light patterns	Accessory secondary error message	Recommended action
	DIMM slot 2 incompatible error	• Turn the printer off. Reseat DIMM in slot 2. Turn the printer on. • If the problem persists, replace the DIMM in slot 2. • Replace the formatter.

Alphabetical messages

The following control-panel messages are for the LJ 3100, LJ 3150, LJ 3200, and LJ 4100 Series printers. Numerical messages begin on page 67.

(number) is a group, group not allowed

Enter a different one-touch button or an unassigned speed-dial code.

Access denied/menus locked

Ask the network administrator to unlock the function.

Already in group

While programming a group-dial code, a fax number has been added that is already in the group.

Add the next fax number to the group.

Bad duplexer connection

1 Ensure that the right-angle power cord that shipped with the printer is being used.
2 Turn the printer off.
3 Remove and reinstall the duplexer.
4 Turn the printer on.
5 If the message persists, make sure that the duplexer is connected and that the connector is not damaged.
6 Replace the duplexer.

Bad env. feeder connection

1 Remove and reinstall the envelope feeder.

2 Turn the printer off and then back on.

3 Replace the envelope feeder.

Bad opt tray connection

1 Reinstall the optional tray.

2 Turn the printer off and then back on.

3 Make sure that the optional tray is connected and that the connector is not damaged.

4 Replace the optional tray.

Blacklisted (France only)

The attempted fax number has received a voice answer or no answer, was busy on the first dial and redials, or was busy with redials pending.

Unplug the power cord for the fax machine from the power strip or outlet, and then plug it back in.

Busy

Check the fax number and try resending the fax. If the message appears again, try sending to another fax machine, or try again later.

Cancel group edit, ENTER to confirm

BACKSPACE was pressed while in a group-dial code in the Group Dial Setup level of the menu.

1 Press **START** to return to the group-dial code and continue editing.

2 Press **ENTER/MENU** to go to the Group Dial Setup level of the menu. (Press **ENTER/MENU** again to choose a different group-dial code.)

3 Press **STOP/CLEAR** to exit the menu settings.

Canceled copy/Clear document feeder

STOP/CLEAR was pressed to cancel the current job while pages were feeding from the document feeder. The cancel process will not automatically clear the document feeder.

1 Pull the document-release door open, remove the jammed item, and close the door.

2 Clear the items in the document-feeder tray and start over.

Canceled fax/Clear document feeder

STOP/CLEAR was pressed to cancel the current job while pages were feeding from the document feeder. The cancel process will not automatically clear the document feeder.

1 Pull the document-release door open, remove the jammed item, and close the door.

2 Clear the items in the document-feeder tray and start over.

Canceled scan/Clear document feeder

STOP/CLEAR was pressed to cancel the current job while pages were feeding from the document feeder. The cancel process will not automatically clear the document feeder.

1 Pull the document-release door open, remove the jammed item, and close the door.

2 Clear the items in the document-feeder tray and start over.

Cannot duplex/Close rear bin

1 Close the rear output bin.

2 If the message persists, check sensor PS702 in the duplexer.

Check input device alternates with
Paper path open, please close it

1 Check that all doors and trays are closed.

2 Check the tabs and sensor levers in the tray for proper operation.

3 Replace any defective tabs or sensors.

4 Replace the PCA controller in the feeder.

Check output device alternates with
Close output delivery path

1 Ensure the optional output device is fully seated and properly installed.

2 Make sure that the paper path is closed between the printer and the external paper-handling output device.

Checking paper path

The engine is checking for possible jams or print media that was not cleared from the printer.

Wait for the printer to finish checking (up to 30 seconds).

Clear document from scanner

1 Check to see if the document is jammed or if multiple sheets of the document were loaded.

2 Check the special-media lever. It should be to the left for regular-weight items or to the right for thick items. Thick items must be fed one at a time.

3 Check the control panel configuration for outgoing faxes, including the "send long pages" setting.

Close top cover

1 Close the top cover.

2 If the message persists, check SW101 for proper operation. Make sure the wires are connected properly.

3 Replace SW101.

4 If the new switch does not solve the error, the wiring or the ECU might be defective.

Communication error

1 Try resending the fax.

2 If the call fails again, check that the telephone cord is securely connected. Then check for a dial tone on the phone line by pressing **MANUAL DIAL**.

3 Reset the product by pressing and holding **STOP/CLEAR** for seven seconds.

4 Wait, or try resending the fax later.

Configuration err # (number 1-4)

An error was detected in the static random-access memory (SRAM).

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If the error persists, replace the formatter.

Config. stuck addr

1 In Service mode, run the SRAM stuck address test.

2 Unplug the power cord from the power source, wait 10 seconds, and reconnect the power cord.

3 If the error persists, replace the formatter.

Config. tied addr

1 In Service mode, run the SRAM tied address test.

2 Unplug the power cord from the power source, wait 10 seconds, and reconnect the power cord.

3 If the error persists, replace the formatter.

Copy count set to 1

The product does not have enough memory to complete the collated copy job.

Continue completing the collated copy job.

[Date] [Time]

The battery has failed.

You can continue to use the HP LaserJet product without replacing the battery, but if you reenter the menu settings and then turn off the power, the settings will be erased again.

Decoding error # (number 1-3)

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If the error persists, replace the formatter.

Disk device failure

1 Reseat the EIO disk.

2 Replace the old disk device with a new disk.

Disk file operation failed

1 Check the filename and directory name.

2 Reseat the EIO disk.

3 Retry the operation.

Disk file system is full

1 Delete all unnecessary files from the EIO disk, and then try again.

2 Use HP Resource Manager to download or delete files and fonts. (See the software Help for more information.)

3 Increase the permanent storage (use a larger EIO disk or add a RAM DIMM).

Disk is write protected

Use the HP Resource Manager software to disable the write-protection.

Documents were lost, START to continue

1 Press **START**. A report is printed.

2 Check the fax log status column for the "Fax Document was Lost" message.

3 Resend the associated outgoing faxes. Ask the sender to resend incoming faxes.

Duplex error, check duplexer

1 Check the duplexer for a jam.

2 Make sure the right-angle power cord is used for the printer.

3 Reseat the duplex assembly, and check the connection.

4 Replace the duplex unit.

EIO [x] not functional

1 Reseat the EIO disk in the indicated slot [x].

2 If the problem persists, remove and replace the EIO disk.

EIO [x] initializing alternates with
Do not power off

1 Wait for the message to disappear (up to 5 minutes). If the printer EIO card is operating correctly and communicating with the network, this message disappears after approximately 1 minute and no action is required.

2 If the EIO card is unable to communicate with the network, this message remains for 5 minutes and then disappears.

  • Reseat or replace the indicated EIO card [x].

  • Check the cable connections.

3 If the problem persists, contact the network administrator.

EIO disk [x] non-functional

1 Reseat the indicated EIO disk [x].

2 Replace the indicated EIO disk [x].

Encoding error

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If the error persists, replace the formatter.

Env. feeder load [Type][Size]

1 Load the requested envelope type and size into the envelope feeder.

2 Make sure that the envelope size and type are set correctly on the **Paper-handling** menu in the printer control panel.

3 Press **GO** if the envelope is already loaded in the feeder.

4 Press **-VALUE+** to scroll through the available types and sizes.

5 Press **SELECT** to accept the alternate type or size.

Envelope feeder size = [xxxxx]

• Press **SELECT** to accept the current envelope size or press **-VALUE+** to change the size, and then press **SELECT** to accept the new size.

• If you do not press any buttons, the message disappears in about 1 minute.

Note
Changing the size here changes the default for the envelope-feeder size on the **Paper-handling** menu.

Envelope feeder type - [xxxxx]

Choose one of the following:

- Press **SELECT** to accept the media type, and then press **GO**.
- Press **+VALUE-** to change the type, press **SELECT** to accept the new type, and then press **GO** to continue.

Errors likely in pages: (page range)

Resend the fax or ask the sender to resend the fax to you.

Fatal system error

1 Turn power off and then back on.

2 Replace the firmware DIMM.

Fax document was lost

1 If you set up faxes to be sent at a future time or to be polled, print a fax log to identify which faxes were lost. Then reenter the faxes.

2 Faxes that were received to memory (instead of printing) have been lost. Ask the sender to resend the fax.

Fax does not answer/Canceled send

1 Call the recipient to ensure that the fax machine is on and ready.

2 Check that you are dialing the correct fax number.

3 Check that the redial option is enabled.

4 Unplug the telephone cord from both the product and the wall, and then reconnect the cord.

5 Unplug the product telephone cord from the wall, plug in a telephone, and then try making a call.

6 If the error persists, replace the LIU.

Fax does not answer/Redial pending

1 Allow the product to retry sending the fax.

2 Call the recipient to ensure that the fax machine is on and ready.

3 Check that you are dialing the correct fax number.

4 Check that the **Redial on no answer** option is enabled.

5 Unplug the product telephone cord from the wall, plug in a telephone, and try making a call.

6 Plug the product phone cord into a jack for another phone line.

7 If the error persists, replace the LIU.

Fax memory error # (number 1-5)

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If you set up faxes to be sent at a future time or to be polled, print a fax log to identify which faxes might have been lost. Then, reenter the faxes.

3 Faxes that were received to memory (instead of printing) have been lost. Ask the sender to resend the fax.

4 If the error persists, replace the formatter.

Fax memory full/Canceling receive

The product memory filled. Pages that fit into memory will be printed.

1 Print all of the faxes, and then have the sender resend the fax.

2 Cancel all fax jobs or clear the faxes from memory.

Fax memory full/Canceling send

The product memory filled. Pages that fit into memory were sent.

1 Print all received faxes, or wait until all pending faxes are sent.

2 Cancel all fax jobs, or clear the faxes from memory.

Fax receive error

1 Ask the sender to resend the fax.

2 Try faxing back to the sender or to another fax machine.

3 Check that the telephone cord is securely connected by unplugging and reconnecting the cord.

4 Press **FAX/SEND** to check for a dial tone on the phone line.

5 Make sure the phone line is working. Disconnect the product, plug in a telephone to the phone line, and then make a voice call.

6 Connect the product to a different phone line.

Fax send error

1 Try resending the fax.

2 Try faxing to another fax number.

3 Check that the telephone cord is securely connected by unplugging and reconnecting the cord.

4 Press **FAX/SEND** to check for a dial tone on the phone line.

5 Make sure the phone line is working. Disconnect the product, plug in a telephone to the phone line, and then make a voice call.

6 Connect the product to a different phone line.

Flash device failure

1 Reseat the flash DIMM, and ensure it is locked into place.

2 Remove the flash DIMM, and replace it with a new one.

Flash file operation failed

1 Check the filename and directory name.

2 Reseat the flash DIMM, and ensure it is locked into place.

3 Reattempt the operation.

Flash file system is full

1 Delete unnecessary files from the flash DIMM, and then try again.

2 Use HP Resource Manager to download or delete files and fonts. (See the software Help for more information.).

Flash is write protected

Use the HP Resource Manager software to disable the write protection.

Group dial not allowed in group

Type one-touch buttons (programmed as an individual speed-dial) or speed-dial codes into a group-dial.

Group is full/FAX to start

The maximum number of fax numbers that can be added to an ad hoc group is 20.

Resend to the ad hoc group using less fax numbers.

Group is empty, use ONE-TOUCH/SPEED DIAL

1 Begin adding fax numbers to the group-dial code by pressing the one-touch button for each number or by pressing **SPEED DIAL**.

2 Type the speed-dial code for the fax number.

3 Press **ENTER/MENU**.

In cleaning mode/Please wait 1 - 3 min.

The product is running an internal cleaning cycle.

Wait for the product to finish the cleaning cycle. The message will clear when the cycle is finished.

Input device condition xx.yy

1st x = Device number in chain

2nd x = Device type (3 types):

- 1 = Input

- 2 = Output

- 3 = Stapler/stacker unit

yy = Device specific error

See the documentation that came with the paper-handling device.

Input limit reached

The maximum number of fax numbers that can be added to an ad hoc group is 100.

Resend the fax, but only to 100 or fewer fax numbers.

Install duplexer

1 Install or reinsert the duplexer and ensure it is fully seated.

2 Ensure that the right-angle power cord is used for the printer.

Install toner cartridge

Reseat or install a new toner cartridge.

Install tray [x]

1 Reinsert the specified tray.

2 Check for damaged tabs in the tray.

3 Check for damaged switches in the printer.

4 Replace the PCA controller in the feeder.

Invalid date or time

Reenter the date and time.

Keypad test failed

1 Run the keypad test again.

2 If the error persists, try each of the following in the order given:

- Check the cabling.
- Replace the control panel.
- Replace the formatter.

Loading program <number> alternates with
Do not power off

Wait for the program to load.

Long page? START to continue

1 Press **START** to continue scanning. If **START** is not pressed within a few seconds, the message disappears, and the document scanner stops scanning because it thinks the page has jammed.

2 If sending a fax or copying a document longer than 991 mm (39 inches), the control panel configuration can also be set to "Send long pages." This ensures that long pages feed without having to monitor the task. Press **START** before the document scanner shuts off.

Manually feed [type] [size]

1 Load the requested media into tray 1.

2 Press **GO** if the appropriate media is already loaded in tray 1.

3 Press **-VALUE+** to scroll through the available types and sizes.

4 Press **SELECT** to accept the alternate type or size.

Memory full - send unscanned pages

1 Reload the unscanned pages and resend them to finish the fax job.

2 Scan the unscanned pages to the computer, and then fax them from the computer.

Memory full - stored data lost

Add more memory to the printer or simplify the print job.

Memory is full

This message should clear automatically when the next task starts (for example, when you start a copy or receive a fax).

Memory low/Only 1 copy/Press STOP

1 Press **STOP/CLEAR** to clear the error.

2 Use the HP LaserJet Director to make multiple copies of large documents, or break the job into smaller jobs containing fewer pages.

Memory low/STOP to cancel

The product memory has been almost completely filled.

Allow the product to finish the job, or press **STOP/CLEAR** to cancel the job.

Memory settings changed

Add more memory to the printer, or simplify the print job.

Memory shortage job cleared

1 Press **Go** to continue.

2 Add more memory to the printer, or simplify the print job.

Memory shortage page simplified

1 Press **Go** to continue.

2 Add more memory to the printer, or simplify the print job.

Modem error # (number 1-3)

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If the error persists, try each of the following in the order given:

  • Check the cabling.

  • Replace the LIU.

  • Replace the formatter.

No answer

1 Check the fax number, and then try resending the fax.

2 If the message appears again, try sending to another fax machine, or try again later.

No dial tone

1 Check that the telephone cord is securely connected.

2 Check for a dial tone.

- For LJ 3100 and LJ 3150 models: Press and hold **STOP/CLEAR**.
- For LJ 3200 models: Press **FAX/SEND**.

3 If necessary, check the wall outlet by plugging in a phone and attempting to place a call.

4 Plug the product phone cord into a jack for another phone line.

5 If the error persists, replace the LIU.

6 If, after replacing the LIU, the error persists, replace the formatter.

No document sent

The fax forwarding setting is on, and the product unsuccessfully received a fax because of low memory or some other reason.

Print the faxes in memory, and then have the sender resend the missing pages of the document.

No fax detected

The product answered the incoming call, but could not determine that the caller was a fax machine.

1 Allow the product to retry sending the fax.

2 Unplug the product telephone cord from the wall, plug in a telephone, and then try making a call.

3 Plug the product phone cord into a jack for another phone line.

4 If the error persists, replace the LIU.

No fax in (number) tries

1 Check the fax number, and then try resending the fax.

2 If the message appears again, try sending to another fax machine, or try again later.

No fax pages in memory to reprint

The product attempted to execute "Reprint Last Fax" when nothing was in memory.

Receive a fax before attempting to use this option.

No memory for report, erase/print document

1 Print all faxes that have been received in memory.

2 If you have several faxes set up to be sent at a future time or to be polled, use job status to clear them.

No modem installed

There is a problem with the LIU.

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If the problem persists, replace the LIU.

3 If the problem persists, replace the formatter.

No room in fax log

The fax log was unable to print because of an error, such as out-of-paper.

Load media in the paper-input bin so the product can print the fax log.

Non HP toner detected alternates with
Press GO to continue

Make sure that the toner cartridge is a genuine HP toner cartridge. A
non-HP toner cartridge will produce this error.

Note

Any printer repair required as a result of using non-HP toner is not
covered under the printer warranty.

- If the HP toner cartridge is new, the e-label (cartridge memory) is
  missing or has been tampered with. If you believe that the toner
  cartridge is a fraud, call the HP fraud hotline at
  (1) (877) 219-3183 (toll-free in North America).

- If the HP toner cartridge is used, the printer will not recognize the
  cartridge until 20 pages have been printed. After 20 pages have
  been printed, the error message disappears.

- If the HP toner cartridge is used, and the error message remains
  after 20 pages have been printed, the cartridge has run out of toner.
  Replace the toner cartridge.

Not enough memory

1 Try resending the job.

2 Try reducing the amount of activity on the HP LaserJet product.
   Cancel jobs in memory before resending the job.

3 If the problem persists, press and hold **STOP/CLEAR** for 7 seconds to
   reset the product.

Not enough memory to duplicate for copy

1 Divide the copy job into smaller sections, and then try to copy again.

2 Use the Document Assistant to complete the copy job.

No fax pages in memory to reprint

Wait for a fax.

As soon as a fax is in the memory, the product will reprint the fax.

Offline

The printer is offline.

Press **Go** to place the printer online.

Output bin full alternates with
Clear paper from [bin name]

Remove the sheets from the output bin.

Paper bin is empty, please add paper

1 Load media.
2 If media is already loaded, remove it.
3 Check for, remove, and discard any jammed sheets.
4 Reload the media.

Paper wrapped around fuser

1 Turn the printer off to keep the media from wrapping more firmly around the fuser.
2 Open the top cover, and remove the toner cartridge.
3 Remove all visible media.
4 Leave the printer turned off, and remove the fuser.
5 Remove any remaining media, and then replace the fuser.

Password must be 4 digits

Reenter a four-digit password.

Paused (memory full)

1 Reduce the size of the print job, or wait for other jobs to finish so memory will be freed.

2 If faxes are set up to be polled or sent at a future time, you might want to cancel these jobs to free memory.

PC not detected/Address invalid

1 Make sure that the parallel cable is securely connected between the computer and the HP LaserJet product.

2 Make sure that the computer is on.

3 Make sure that a compatible e-mail program and the JetSuite Pro software are installed on the computer.

PC print timed out

1 Allow the "print jobs retry" to continue for 5 minutes.

2 If the product still does not print, resend the print job.

Perform printer maintenance

1 Install the printer maintenance kit.

2 To reset the maintenance page count after performing printer maintenance, press **ITEM-** and **VALUE-** while turning the printer on.

Note
   The printer maintenance kit is a consumable item and is not covered under warranty.

Phone number error

The maximum number of characters that can be used is 60. If you have a number longer than 60 characters, break the number into smaller chunks.

1   Type the first part of the number, and then press **REDIAL/PAUSE** as the last character in the first number.

2   Type the second part of the number as if it were a second number going to a group. When the product dials, it will treat both numbers as if they are one.

Polling-in error

Make sure that the sender's fax machine is ready to be polled, and check the fax number. Then, set up to poll again.

Power fail recover/Checking system

The product has detected a power failure and is performing a self-test.

1   The product should go back to the Ready state on its own. If this message does not disappear in a couple of minutes, disconnect the power cable from the product, wait at least 30 seconds, and then reconnect the power cable.

2   Wait for the product to initialize.

Power fail recovery/Fax setting reset

Press **STOP/CLEAR** to clear the error. The product should return to the Ready state.

Power fail recovery/Printing faxes

The product has detected a power failure and is printing all of the faxes that it did not previously print. Once the faxes are printed, the product returns to the Ready state.

Power fail recover/Send: [fax number]

The product has detected a power failure and has also detected unsent faxes. Once the product resends the faxes, the product will return to the Ready state.

Power off/Check DIMM #[1-3]

The DIMM in the indicated slot has failed.

Turn off the product and check the indicated DIMM.

Printer comm error

1 Check that the parallel cable is securely connected between the product and the computer.

2 If the problem persists, unplug the power cord from the power source for 10 seconds, and then reconnect the power cord.

3 If the problems persists, replace the formatter.

Printer comm error^1

1 Check that the parallel cable is securely connected between the product and the computer.

2 If the problem persists, unplug the power cord from the power source for 5 seconds, and then reconnect the power cord.

3 If the problems persists, replace the formatter.

Printer cover open or no cartridge

1 Verify that the printer door is closed.

2 Check the toner cartridge for proper installation.

Printer fixing error, replace fixing unit

There is an error with the print engine.

1 Unplug the power cord from the power source for 10 seconds, and then reconnect it.

2 Try connecting the product to a different power source.

3 Check the cabling to the heating element.

4 If the problem persists, replace the heating element.

5 If the problem persists, replace the ECU.

Printer is busy

No action is needed. If you already started another job, the job will be completed when the HP LaserJet product becomes available.

Printer laser error, call for service

1 Open and reclose the printer door.

2 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

3 If the problem persists, replace the laser/scanner assembly.

Printer motor error, call for service

A problem has occurred with the print engine.

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If the problem persists, replace the motor.

3 If the problem persists, replace the ECU.

Printer paper jam, check paper path

Check the input areas, the output areas, and the interior for the jam, and then clear the jam. The job should continue to print. If it does not, try reprinting the job.

Printer signal error

The printer door is not latched securely.

1 Open and close the printer door.

2 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

3 If the problem persists, replace the laser/scanner assembly.

Printer tray mispick/ENTER to resume

The print engine has failed to pick up a piece of media.

1 Reload the media in the paper-input tray.

2 Press **ENTER/MENU** to continue the job.

Processing job

The printer is processing a job.

Wait for the job to finish. This can take several minutes for a complex job.

Processing cleaning page

The printer is conducting the manual cleaning-page process.

Wait for the job to finish. This can take up to 2.5 minutes.

RAM disk device failure

1 Turn the printer off and on to clear the message.

2 If the message persists, install a new RAM disk.

RAM disk file operation failed

1 Check the file name and directory name.

2 Reseat the RAM disk.

3 Reattempt the operation.

RAM disk file system is full

1 Delete the unnecessary files, and then try again, or turn the printer off, and then turn the printer on to delete all files on the device. (Delete files using HP Resource Manager or another software utility. See the software Help for more information.)

2 If the message persists, increase the size of the RAM disk from the **Configuration** menu in the printer control panel, or use HP Resource Manager to increase or decrease the RAM disk size.

RAM disk is write protected

Use HP JetAdmin software to disable the write protection.

Receive error

Ask the sender to resend the fax.

Receiving fax busy/Canceled fax

1 Call the recipient to ensure that the fax machine is on and ready.

2 Check that you are dialing the correct fax number.

3 Check that the redial on busy option is enabled.

4 Press and hold **STOP/CLEAR** for 7 seconds to check for a dial tone.

5 Unplug the product from the wall, plug in a telephone, and try making a call.

6 If the error persists, replace the LIU.

Receiving fax busy/Redial pending

1 Allow the product to retry sending the fax.

2 Call the recipient to ensure that the fax machine is on and ready.

3 Check that you are dialing the correct fax number.

4 Unplug the product telephone cord from the wall, plug in a telephone, and then try making a call.

5 Plug the product phone cord into a jack for another phone line.

6 If the error persists, replace the LIU.

Redial failed

1 Try resending the fax. If the fax still fails to transmit, call the recipient to check that the fax machine is on and working and to verify the fax number.

2 Make sure that you are dialing the correct fax number.

3 Disconnect the telephone cord from both the product and the wall outlet, and then reconnect it.

4 Press and hold down **STOP/CLEAR** for 7 seconds to check for a dial tone.

5 Make sure that the phone line is working. Disconnect the product, plug a telephone into the phone line, and then make a call.

6 Connect the product to a different phone line

Remote fax was busy

1 Try resending the fax.

2 If the fax still fails to transmit, call the recipient to check that the fax machine is on and is working, and then verify the fax number.

Scan reference error

Recalibrate the document scanner.

Scanner error #1

An error has occurred within the SRAM.

1 Press and hold down **STOP/CLEAR** for 7 seconds to reset the product.

2 Check the cabling connections.

3 If the error persists, unplug the power cord from its power source for 10 seconds, and then reconnect the power cord.

4 Try connecting the product to a different power source.

5 If the error persists, replace the contact image sensor.

6 If the error persists, replace the formatter.

Scanner isn't available

The document scanner mechanism is in use.

Wait until the document scanner has finished the current job before sending the next job.

Scanner jam - reload

Pull the document-release door open, and then remove the jammed document

Scanner reserved for PC scan

The product is being used to create a scan by a computer.

Wait until the computer scan has finished, or cancel the scan from the computer software, or press **STOP/CLEAR**.

Scanning error/Cannot connect to PC

1 Check the connection cable.

2 Try the scan again.

Speed dial (number) is not assigned

Choose a speed-dial code that has already been assigned a fax number.

System error

1 Unplug the power cord from the power source, wait 10 seconds, and then reconnect the power cord.

2 If the message is still displayed, replace the formatter.

Toner low

The message first appears when about 15 percent of the toner is remaining in the toner cartridge.

1 If the printer has stopped, resume printing by pressing **Go** for each job.

2 Have a replacement toner cartridge on hand.

Toner out

1 If the printer has stopped, resume printing by pressing **Go** for each job.

2 Replace the toner cartridge.

Tray [x] empty [type] [size]

1 Load the empty tray to clear the message.

2 If the message remains after the specified tray is loaded, check the sensor arm flags for damage, and be sure they move freely.

3 Replace defective paper-out sensors.

Tray [x] load [type] [size]

This message occurs if tray 2, 3, or 4 was requested, but the tray is empty or the tray adjustments are not set for the requested media type or size.

1 Ensure that all three paper-size adjustments have been made.

2 Make sure that the media type is set in the control panel.

3 Load the requested media into an indicated tray. Ensure that the tray is fully seated.

4 If you are trying to print on A4- or letter-size media, and this message appears, make sure the default paper size is set correctly from the **Printing** menu in the printer control panel and in the software program.

5 Press **GO** to print from the next available tray.

6 Press **-VALUE+** to scroll through the available types and sizes.

7 Press **SELECT** to accept the alternate type or size.

Tray 1 load [type] [size]

1 Load the requested media into the specified tray. Ensure that the trays are correctly adjusted for size, and that the tray type settings (and size for tray 1) are set from the **Paper-handling** menu.

2 If you are trying to print A4- or letter-size media and this message appears, make sure the default paper size is set correctly from the **Printing** menu on the printer control panel.

3 If the message appears, and the correct media is loaded:

   • Ensure that all paper-size adjustments have been properly performed.

   • Ensure the tray type setting is correct in the **Paper-handling** menu.

   • Check the size tabs on the right side of the tray.

   • Check the size switches and paper sensors.

   • Ensure that the tray is fully seated.

Tray 1 load [type] [size] (continued)

4 To print on a different media that is already loaded:

- Press **GO** to print from the next available tray.
- Press **-VALUE+** to scroll through the available types and sizes.
- Press **SELECT** to accept the alternate type or size.
- Inspect the switches in the tray.
- Remove the tray, and then turn the printer on. Push the switches by hand to see if the switches register.

Tray 1 size = [xxxx]

Choose one of the following:

- Press **SELECT** to accept the media size.
- Press **-VALUE+** to change the size, and then press **SELECT** to accept the new size.

Tray 1 type = [xxxx]

Choose one of the following:

- Press **SELECT** to accept the media type.
- Press **-VALUE+** to change the type, and then press **SELECT** to select the new type.

Unable to mopy job

Memory of file system failures would not allow a mopy job to occur.

1 Reseat the RAM DIMMs or the EIO hard disk.

2 Install additional memory or an EIO hard disk.

Unable to store job

Memory or file system failures would not allow the printer to store the job.

1 Reseat the RAM DIMMs or the EIO hard disk.

2 Install additional memory or an EIO hard disk.

Unrecognized format

When printing, the incorrect printer driver was selected, or an error occurred with the parallel interface.

1 After selecting the **Print** command in the software program you are using, select the **HP LaserJet 3100** or **3150** as the printer.

2 Reprint the job.

3 Disconnect and reconnect the parallel cable from both the product and the computer.

Unsuccessful call

1 Check the fax number and try resending the fax.

2 If the message appears again, try sending to another fax machine, or try again later.

Unsupported size in tray [yy]

Load a supported media size in the tray. See chapter 5 for a list of supported media sizes.

Use [type] [size] instead?

1   Press **-VALUE+** to scroll through the available types and sizes.

2   Press **SELECT** to accept the alternate type or size.

Wait for printer to reinitialize

The RAM disk setting has been changed from the printer control panel. This change will not take effect until the printer re initializes.

Turn the printer off, turn the printer on, and then wait for the printer to reinitialize.

Numerical messages

###: [group name] one-touch/speed dial

The product is waiting for you to press a programmed one-touch button or to type a speed-dial code into a group-dial code.

Begin adding fax numbers to the group-dial code.

not programmed [Enter] to program

Press **ENTER/MENU** to program the one-touch or speed-dial.

- If you want to program a group-dial, press **STOP/CLEAR**, and use the control panel menu to create a new group.
- Press **STOP/CLEAR** if you do not want to program the one-touch or speed-dial.

XX.YY printer error, press Go to continue

Press **GO** on the printer control panel to clear the error message.

13.xx Paper jam [location]
13.0 Paper jam [location]

1   Remove the jammed media from the specified location. Check the entire paper path for other pieces of media.

2   Open and close the top cover to clear the message.

3   Check sensors and flags in the paper path for proper operation.

4   Clean the paper-path components. Ensure that the transfer roller is seated properly.

5   Inspect and replace the feed and separation rollers.

6   Verify that the media length meets HP specifications, and that the media size is selected correctly in the software.

7   Ensure that the paper tray is loaded properly.

13.1 Paper jam open input trays
13.2 Paper jam open input trays

1 Ensure that the paper trays are loaded properly so that media can feed from the trays.

   - If multiple sheets are feeding, fan the media, and reduce the stack height.
   - Ensure that the media does not exceed the maximum length (356 mm/14 inches).
   - Rotate the media in the input tray by 180°.

2 Check the input area for obstructions, such as media in the paper path or damage to the registration assembly.

3 Verify that the transfer roller is positioned correctly.

4 Check PS102 and PS103 for proper operation.

5 Replace any defective sensors or flags.

6 Check the pickup feed and separation rollers for unusual wear, and replace as needed.

7 Verify that the fuser is properly installed.

13.5 Paper jam check rear door alternates with Open and close top cover
13.6 Paper jam check rear door alternates with Open and close top cover

1 Check the transfer roller and small media belt to ensure that the roller and belt are operating and can feed the media.

2 Check the paper path for obstructions at the transfer roller, toner cartridge, paper-feed guide, fuser, and output/delivery area.

3 Check PS107 and PS108 for proper operation. Replace any defective sensors or flags.

4 Turn the media stack over, or rotate the stack by 180° in the input tray.

13.10 Paper jam check duplexer alternates with Open and close top cover

1 Check the duplexer and the rear area of the printer for obstructions or damage.

2 In the duplexer, check PS701 and PS703 for proper operation.

3 Replace the duplexer if a sensor is defective.

13.20 Paper jam check rear door alternates with Open and close top cover open input trays

1 Remove all media in the paper path, and then open and close the top cover.

2 If the message persists after all media is removed:

   • Check whether the media is jammed in the prefeed area (PS102).

   • Check PS102, PS103, PS107, and PS108 for proper operation. Replace any defective sensors or flags.

13.21 Door open jam

1 Clear the jam and close the top door.

2 If the message persists, check the top door switch (SW101) for proper operation.

13.99 Paper jam [location]

1 Remove jammed media from the specified location.

2 Verify that the paper tray is fully closed.

3 Inspect the feed and separation rollers, and replace if necessary.

4 Ensure that there is no obstruction in the path, such as a torn piece of media.

5 Open and close the top cover to clear the message.

6 Check sensors and flags for proper operation.

20 Insufficient memory alternates with Press Go to continue

Press **Go** to print the transferred data (some data might be lost), and then simplify the print job, or install additional memory.

21 Page too complex alternates with Press Go to continue

Press **Go** to print the transferred data (some data might be lost), and then simplify the print job, or install additional memory.

40 EIO x bad transmission alternates with Press Go to continue

1   Press **Go** to clear the error message and continue printing.

2   Reseat the EIO card.

41.x Printer error alternates with Press Go to continue

1   Press **Go**. The page containing the error reprints automatically. If the error persists, try the following procedures:

- Reseat the connections to the laser/scanner and the engine controller board.
- Replace the laser/scanner.

2   Replace the ECU.

41.3 Unexpected paper size alternates with Load tray [x] type size

1 Reload the tray with the correct media size.

2 Ensure the media in the tray is loaded under the front and back tabs. Check sensors PS103 and PS106 for proper operation.

3 If you are trying to print from tray 1, make sure that the paper-size setting in the printer control panel is configured correctly.

4 If you are printing from tray 2, 3, or 4, verify that the three paper-size adjustments (length guide, width guide, and size-selector switch) on the paper tray have been made correctly. Make sure that the media is under the corner tabs.

5 Press **GO**. The page containing the error is automatically reprinted. OR
Press **CANCEL JOB** to clear the job from the printer's memory.

41.5 Printer error

1 This error usually occurs with smooth media, such as transparencies or labels.

- If the error persists when using tray 1, load media one sheet at a time.
- If the error persists when using trays 3 and 4, replace the feed and separation rollers.

2 Check sensors PS102 and PS103 for proper operation.

49.xx Printer error alternates with Cycle power to continue

1 Press **CANCEL JOB** to clear the print job from the printer memory.

2 Turn the printer off, and then turn the printer on.

3 Try printing a job from a different software program. If the job prints, go back to the first program and try printing a different file. (If the message only appears with a certain software program or print job, contact the software vendor for assistance.)

4 If the message persists with different software programs and print jobs, disconnect all cables to the printer that connect it to the network or printer. Do the following in the order listed:

• Turn the printer off.

• Remove all memory DIMMs or third-party DIMMs from the printer. (Do not remove the firmware DIMM in the lowest DIMM slot.)

• Remove all EIO devices from the printer.

• Turn the printer on.

5 If the error no longer exists, install each DIMM and EIO device one at a time, making sure to turn the printer off and back on as you install each device.

6 Replace a DIMM or EIO device if you determine that it causes the error.

7 Remember to reconnect all cables that connect the printer to the network or computer.

8 If the error persists, replace the firmware DIMM.

9 Replace the formatter.

50 Fuser error

1 Disconnect the power cable from the product, wait at least 30 seconds, and then reconnect the power cable and wait for the product to initialize.

2 Check the cabling connections to the heating element.

3 Replace the heating element.

4 If the error persists, replace the ECU.

50.x Fuser error

X = Description

1 = Low fuser temperature

2 = Fuser warm-up service

3 = High fuser temperature

1 Turn the printer off, wait 20 minutes, and then turn the printer on.

2 If the message persists, reseat the fuser.

3 If the message still persists, check the fuser.

- Turn the printer off and remove the fuser.

- Measure the distance between the fuser connectors J132-1 and J132-2. If it is not within the range of 200 kΩ to 500 kΩ, replace the fuser.

- If there is no continuity between the fuser connectors J143F (neutral) and J142F (hot) with the fuser removed, replace the fuser.

4 If the problem is not related to the fuser, replace the ECU.

50.4 Printer error alternates with Cycle power to continue

1 Remove the printer from any UPS supplies, additional power supplies, or power strips.

2 Plug the printer into a wall outlet, and see if this resolves the problem.

3 If the printer is already plugged into a wall outlet, try another power source in the building that is independent of the one currently being used.

4 The line voltage and current source at the printer location might need to be inspected to ensure that they meet the printer's electrical specifications.

51 Laser error

1 Disconnect the power cable from the product, wait at least 30 seconds, reconnect the power cable, and then wait for the product to initialize.

2 Check the cabling connections to the laser/scanner.

3 Try connecting the product to a different power source or surge protector.

4 If the error persists, replace the laser/scanner.

51.x Printer error alternates with Cycle power to continue

X = Description

1 = Beam detect error

2 = Laser error

1 Press **Go**. The page containing the error reprints automatically.

2 Turn the printer off and then on.

3 Reseat the cables to the laser/scanner and ECU.

4 Replace the laser/scanner.

52 Scanner error

1 Disconnect the power cable from the product, wait at least 30 seconds, reconnect the power cable, and then wait for the product to initialize.

2 Try connecting the product to a different power source or surge protector.

3 If the error persists, replace the contact image sensor.

4 If the error still persists, replace the formatter.

52.x Printer error alternates with
Cycle power to continue

X = Description

  0 = Scanner startup error

  2 = Scanner rotation error

1 Press **Go**. The page containing the error reprints automatically.

2 Turn the printer off and then on.

3 Reseat the cables to the laser/scanner and ECU.

4 Replace the laser/scanner.

53 Printer error

1 Disconnect the power cable from the product, wait at least 30 seconds, reconnect the power cable, and then wait for the product to initialize.

2 If the error persists, replace the formatter.

53.xy.zz Printer memory error with an accessory

The DIMM that caused the error will not be used.

X = DIMM type

0 = ROM

1 = RAM

y = Device location

0 = Internal memory (ROM or RAM)

1 to 4 = DIMM slot 1, 2, 3, or 4

zz = Error number

0 = Unsupported memory

1 = Unrecognized memory

2 = Unsupported memory size

3 = Failed RAM test

4 = Exceeded maximum RAM size

5 = Exceeded maximum ROM size

6 = Invalid DIMM speed

7 = DIMM reporting information incorrectly

8 = DIMM RAM parity error

9 = ROM needs to be mapped to an unsupported address

10 = DIMM address conflict

11 = PDC XROM out of bounds

12 = Unable to make a temporary mapping

1 Turn the printer off, and then reseat or replace the specified DIMM.

2 Try the DIMM in another slot.

3 Replace the DIMM that caused the error.

54 Printer error

1   Disconnect the power cable from the product, wait at least 30
    seconds, reconnect the power cable, and then wait for the product
    to initialize.

2   If the error persists, replace the formatter.

54.1 Remove sealing tape alternates with
From toner cartridge

1   Open the top cover, and remove the toner cartridge.

2   Pull the sealing tape tab to remove the strip.

3   Reinstall the toner cartridge, and then close the top cover.

54.4 Printer error alternates with
Cycle power to continue

1   Remove the printer from any UPS supplies, additional power
    supplies, or power strips.

2   Plug the printer into a wall outlet, and see if this resolves the
    problem.

3   If the printer is already plugged into a wall outlet, try another power
    source in the building that is independent of the one currently being
    used.

4   The line voltage and current source at the printer location might
    need to be inspected to ensure that it meets the printer's electrical
    specifications.

55 DC controller error

1   Disconnect the power cable from the product, wait at least 30
    seconds, reconnect the power cable, and then wait for the product
    to initialize.

2   Check the cabling to the ECU.

3   If the error persists, replace the ECU.

55.xx Printer error alternates with Cycle power to continue

The page containing the error will automatically be reprinted.

1 Check the power.

2 Replace the formatter and/or firmware DIMM.

3 Replace the ECU.

56.x Printer error alternates with Cycle power to continue

X = Description

1 = Illegal input or bad accessory connector

2 = Illegal output

The page containing the error automatically reprints.

1 Turn the printer off, and then turn the printer back on.

2 Check the printer configuration.

3 Verify the accessory connection.

57.x Printer error alternates with Cycle power to continue

X = Description

4 = Printer fan

7 = Duplex fan

1 Check the fan connector and make sure that the fan is not blocked.

2 Replace the fan.

58.2 Printer error alternates with
Cycle power to continue

1 Turn the printer off, and then turn the printer on.

2 Verify that the environmental thermistor cable is securely connected.

3 Replace the environmental thermistor.

4 If the error persists, replace the ECU.

58.3 Printer error

1 Replace the toner cartridge.

2 Check the connection from the memory controller PCB to the engine controller.

3 Replace the memory controller PCB.

4 Replace the cartridge memory antenna assembly.

59.x Printer error alternates with
Cycle power to continue

X = Description

0 = Motor error

1 = Motor startup error

2 = Motor rotation error

1 Turn the printer off and then on.

2 Make sure that the fuser or toner cartridge is not hindering gear movement in the drive train.

3 Verify that the cable in the main motor is seated properly.

4 If the error persists, replace the motor

62.x Printer error

3200 series only

1 Disconnect the power cable from the product, wait at least 30 seconds, reconnect the power cable, and then wait for the product to initialize.

2 If the error persists, replace the formatter.

62.x Printer error

4100 series only

X = Location of problem

0 = Internal memory

1 to 4 = DIMM slot 1, 2, 3, or 4

1 Reseat the specified DIMM.

2 Replace the specified DIMM.

64.x Printer error alternates with Cycle power

1 Turn the printer off and then on.

2 Perform a cold reset.

3 If the message persists, replace the formatter or firmware DIMM.

66.xx.yy [type] Failure alternates with Check cables and cycle power

First X = Device number in chain

Second X = Device type (3 types):

- 1 = Input

- 2 = Output

- 3 = Stapler/stacker unit

yy = Device-specific error

1 Press **GO** to clear the message.

2 Turn the printer off and then on.

3 Check and reseat all cables between the printer and the specified device.

4 Reseat the external paper-handling device.

68 NVRAM full check settings

1 Print a configuration page and check the printer settings to determine which values have changed.

2 Hold down **CANCEL JOB** while turning the printer on. This will clean up the NVRAM by removing old areas that are not being used.

68.x Permanent storage error alternates with Check settings

An error occurred in the printer permanent storage, and one or more printer settings has been reset to its factory default.

Print a configuration page, and then check the printer settings to determine which values have changed.

68.x Permanent storage full

The printer permanent storage is full. Some settings might have been reset to the factory defaults.

1 Print a configuration page, and then check the printer settings to determine which values have changed.

2 Hold down **CANCEL JOB** while turning the printer on. This will clean up the NVRAM by removing old areas that are not being used.

69.x Printer error alternates with
Cycle power to continue

X = Description

0 = The duplex mechanism has failed.

1 Turn the printer off, and then turn the printer back on.

2 Reseat the duplexer.

3 Replace the duplexer.

79 Service (####)

3200 series only

1 Disconnect the power cable from the product, wait at least 30 seconds, reconnect the power cable, and then wait for the product to initialize.

2 If the error persists, replace the DIMMs.

3 If the error still persists, replace the formatter.

79 Service [####]

4100 series only

1. Press **CANCEL JOB** to clear the print job from the printer memory.

2. Turn the printer off, and then turn the printer on.

3. Try printing a job from a different software program. If the job prints, go back to the first program and try printing a different file. (If the message only appears with a certain software program or print job, contact the software vendor for assistance.)

4. If the message persists with different software programs and print jobs, disconnect all cables to the printer that connect it to the network or printer. Do the following in the order listed:

- Turn the printer off.

- Remove all memory DIMMs or third-party DIMMs from the printer. (Do not remove the firmware DIMM in the lowest DIMM slot.)

- Remove all EIO devices from the printer.

- Turn the printer on.

5. If the error no longer exists, install each DIMM and EIO device one at a time, making sure to turn the printer off and back on as you install each device.

6. Replace a DIMM or EIO device if you determine that it causes the error.

7. Remember to reconnect all cables that connect the printer to the network or computer.

8. If the error persists, replace the firmware DIMM.

9. Replace the formatter.

1

80 Service (####)
81 Service (####)

1 Disconnect the power cable from the product, wait at least 30 seconds, reconnect the power cable, and then wait for the product to initialize.

2 If the error persists, replace the formatter.

8x.yyyy EIO [z] error

The EIO accessory in slot [z] has encountered a critical error.

Z = Description

1 = EIO slot 1 -The printer detected an error with the EIO accessory.

2 = EIO slot 2 -The printer detected an error with the EIO accessory.

6 = EIO slot 1 -The EIO accessory detected an error.

7 = EIO slot 2 -The EIO accessory detected an error.

1 Turn the printer off, and then turn the printer on.

2 Turn the printer off, reseat the EIO accessory in slot [z], and then turn the printer on.

3 Turn the printer off, remove the EIO accessory from slot [z], install it in a different EIO slot, and then turn the printer on.

4 Replace the EIO accessory in slot [z].

2 Service mode

Chapter contents

Service mode overview

Service mode allows service personnel to verify and manipulate internal printer settings and to access the diagnostic feature. Service mode should be used only by authorized service personnel.

You can perform the following tasks while in Service mode:

- Print a Service mode self-test.
- Verify the page count.
- Set the page count.
- Set the maintenance count.
- Set the maintenance interval.
- Verify and set the serial number.
- Set the cold reset default. This sets the factory default paper size to either Letter or A4.
- Turn the diagnostic function on or off (for software developer use only).
- Clear the event log.
- Use the Extended Service mode.
- Reset softswitches.
- Perform a firmware download.
- Recalibrate the document scanner.
- Set the page count at which the next PERFORM PRINTER MAINTENANCE message appears on the control panel.
- Set the demo page = true/false (used to remove the demo page from the Service mode self-test).
- Adjust the top margin.

Note
Service mode functions vary among the HP LaserJet printer family.

LJ 1200 Service mode functions

Initializing NVRAM and using cold reset

The NVRAM initialization sets all default variables stored in NVRAM back to the factory default values or to a default ROM value, depending on the variable. It also performs a system reset.

The NVRAM initialization resets the following:

- All menu settings to factory default values
- Factory settings, such as formatter number, page counts, and factory paper settings

To perform NVRAM initialization

1 Turn the printer off.

2 Press and hold **Go**.

3 Turn the printer back on, and continue to hold **Go** until the Attention, Ready, and Go lights turn on.

4 Release **Go**.

   The device lights cycle from front to rear. The NVRAM initialization runs until completion, when the device is in the Ready state.

PJL software commands

To set the following NVRAM variables:

Factory printer DEFAULT PAPER and copier/scanner factory default paper size are set to the same value automatically.

Factory printer DEFAULT LPARM:PCL SYMSET

Factory DEFAULT OEM bit

Factory DEFAULT PRINTPAGECOUNT

Factory DEFAULT SCANPAGECOUNT

Factory DEFAULT COPYPAGECOUNT

2

Default Quick Copy paper size is also stored in the scanner NVRAM, but is changed only through the software or when set back to factory default with a NVRAMINIT. Only Quick Copy image type and contrast have a default value stored in NVRAM. They can only be changed through the software or by NVRAMINIT, which returns them to a ROM default value.

The table below provides a more detailed description of the NVRAM PJL factory variables and commands and shows possible settings for each.

NVRAM PJL factory variables

NVRAM PJL variable or command	Possible settings
DEFAULT PAPER	"Letter", "Legal", "A4", "Executive", "Com10", "Monarch", "DL", "C5", "B5", "Custom", "JISB5", "ISOB5", JPOST", JPOSTTD", A5", "FOOLSCAP"
DEFAULT LPARM:PCL SYMSET	"Roman8", "ISOL1", "ISOL2", "ISOL5", "PC8", "PC8DN", "PC850", PC852", "PC8TK", "WINL1", "WINL2", "WINL5", "DESKTOP", "PSTEXT", "WNINTL", "VNUS", "MSPUBL", "MATH8", "PSMATH", "WNMATH", "PIFONT", "LEGAL", "ISO4", "ISO6", "ISO11", "ISO15", "ISO17", "ISO21", "IS060", "ISO69", "WIN30"
DEFAULT OEM	"On", "Off"
DEFAULT PRINTPAGECOUNT	0-2147483647
DEFAULT SCANPAGECOUNT	0-2147483647
DEFAULT COPYPAGECOUNT	0-2147483647
CLEARNVRAM	None (command)
NVRAMINIT	None (command)

NVRAM PJL factory variables

To use the following commands, you need some method to send PJL commands to the printer, either with a software tool or by copying a binary file that contains the commands from the host using an MS-DOS® box. For example, from the MS-DOS prompt:

    copy /b filename lpt1

Here is an example of a file that uses one of the commands:

    ESC%-12345X@PJL SET SERVICEMODE=HPBOISEID

    @PJL 'command'

    @PJL RESET

Here is an example of using the NVRAMINIT command:

    ESC%-12345X@PJL SET SERVICEMODE=HPBOISEID

    @PJL NVRAMINIT

    @PJL RESET

Note

Set SERVICEMODE before trying to set the variable, or you will not archive the desired result. Also reset the PJL to be sure the SERVICEMODE status is cleared.

To create these files, you need an editor that can insert the ESC character or is able to copy it in from an existing file. If a software tool is used, simply send the same strings in the same order as given for the example files.

Recalibrating the copier/scanner

The optional copier/scanner automatically calibrates to the white sheet opposite the image sensor at the beginning of each scan or copy job.

Keep the white sheet clean to make sure the optional copier/scanner calibrates correctly.

LJ 2200 Service mode functions

In Service mode, the following can be performed:

- Print a Service mode self-test.
- Verify and set the page count.
- Set the cold reset default.
- Set the demo page = true/false.
- Set the diagnostic functions on or off.

Entering Service mode

Use PJL commands to enter Service mode and perform various Service mode configurations. Users must use the exact character and case specified for PCL printer commands.

The following are elements of a typical printer command:

- escape character (begins escape sequence)
- parameterized character
- group character
- value field (contains both alpha and numeric characters)
- termination character (uppercase)

Escape sequences can be combined into one escape sequence string. Follow these important rules to follow when combining code:

1 The first two characters after the escape character (the parameterized and group characters) must be the same in all of the commands to be combined.

2 When combining escape sequences, change the uppercase (termination) character in each individual escape sequence to lowercase.

Note
The final character of the combined escape sequence must be uppercase.

Entering escape characters

Printer commands always begin with the escape character (ESC). The following table shows how the escape character can be entered from various MS-DOS programs.

MS-DOS software	Program entry	What appears
Lotus® 1-2-3 and Symphony®	Type \027	027
WordPerfect for MS-DOS	Type <27>	<27>
MS-DOS Edit	Hold down CTRL-P, and press ESC	<--
MS-DOS Edlin	Hold down CTRL-V, release, and press [	^[

The following table shows how to use PJL commands to enter Service mode and perform various Service mode configurations.

PJL command	Description
E_C%-12345X@PJL	Start PJL job
@PJL SET SERVICEMODE =HPBOISEID	Enter Service mode
@PJL SET PAGES=0	Set page count [= xxxxx]
@PJL SET SERIALNUMBER =USBBB12345	Set printer serial number (=chassis label serial number)
@PJL SET CRPAPER=LETTER	Set cold reset page size [=Letter/A4]
@PJL SET SKIPDEMO=FALSE	Skip demo/PCL type page [=true/false]
@PJL SET DIAGNOSTICS-OFF	Set diagnostics [=OFF/ON] (for ISV use)
@PJL SET SERVICEMODE=EXIT	Exit Service mode
DEFAULT PAPER=LETTER	Select user paper-size default
@PJL RESET	Perform PJL reset
E_C%-12345X	Exit PJL mode
E_CZ	Print self-test/configuration page
E_CE	Reset the printer

Setting the page count

The page count is stored in the printer's NVRAM. If it is necessary to replace the formatter PCB, the page count should be reset to the printer's original page count to reflect the age of the print engine. Before removing the old formatter PCB, print a self-test/configuration page to verify the current page count of the printer.

PJL command	Description
E$_C$%-12345X@PJL	Start PJL job
@PJL SET SERVICEMODE =HPBOISEID	Enter Service mode
@PJL SET PAGES=0	Set page count [= xxxxx]
@PJL SET SERVICEMODE=EXIT	Exit Service mode
@PJL RESET	Perform PJL reset
E$_C$%-12345X	Exit PJL mode
E$_C$Z	Print self-test/configuration page
E$_C$E	Reset the printer

Setting the cold-reset default

The customization variable will determine the default paper size after a cold reset. This is set to A4/letter at the manufacturer. This variable might need to be reset when the formatter is replaced.

PJL command	Description
E_C%-12345X@PJL	Start PJL job
@PJL SET SERVICEMODE =HPBOISEID	Enter Service mode
@PJL SET CRPAPER=LETTER	Set cold reset page size [=Letter/A4]
@PJL SET SERVICEMODE=EXIT	Exit Service mode
@PJL RESET	Perform PJL reset
E_C%-12345X	Exit PJL mode
E_CZ	Print self-test/configuration page
E_CE	Reset the printer

Resetting the printer

Cold reset/EIO card reset

Note
This feature sets all system parameters to the factory defaults.

To perform a cold reset:

1 Turn the printer off.

2 Press and hold **Go**.

3 Turn the printer back on, and continue to hold **Go** until the Attention light turns on.

4 Release **Go**.

The device lights begin cycling from front to rear. The cold-reset process runs until completion, when the device is in the Ready state.

NVRAM initialization

This feature re initializes NVRAM and sets all system parameters to the factory defaults. During the NVRAM initialization process, all button presses are ignored.

To perform an NVRAM initialization:

1 Turn the printer off.

2 Press and hold **Go**.

3 Turn the printer back on, and continue to hold **Go** until the Attention, Ready, and Go lights turn on.

4 Release **Go**.

The device lights begin cycling from front to rear. The NVRAM initialization runs until completion, when the device is in the Ready state.

LJ 3100/3150 Service mode functions

Control-panel Service menu

Use the control-panel menu, under SERVICE, to set up remote servicing and to recalibrate the document scanner.

The service portion of the control panel menu is shown below in a hierarchical diagram:

Control panel service menu

2

Press ENTER/ MENU to gain access to the control panel menu.	Use < and > to select SERVICE, and press ENTER/ MENU.	Use < and > to select one of the choices below, and press ENTER/MENU.	Use < and > to select one of the choices below, and press ENTER/ MENU, or see the display.

```
          Service
                 ┌──────── Remote test
                 ├──────── Remote setup
                 │              ┌──────── Receive setup
                 │              └──────── Send setup
                 ├──────── T.30 protocol trace
                 └──────── Scan correction
```
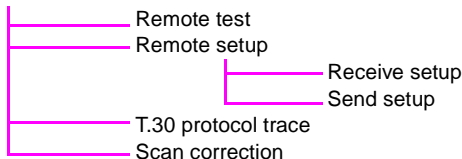
Tests in control-panel Service mode

Brief explanations of tests in the control-panel Service mode are shown below:

- REMOTE TEST sets up the product to test through the fax line.
- REMOTE SETUP, followed by RECEIVE SETUP OR SEND SETUP, allows for softswitch settings to be sent or received through the fax line.
- T.30 PROTOCOL TRACE allows you to set how often the test is run.

Extended Service menu

Use the Extended Service mode to run various self-tests and to change softswitch settings, such as the country code softswitch setting.

To gain access to the Extended Service menu

1 Press **BACKSPACE#****.

2 Use **<** and **>** to select the choices given in the **Extended Service** menu (see "Extended Service menu tree" on page 99) and press **ENTER/MENU**.

Note

See the control-panel display for further instructions.

Extended Service menu tree

The following shows the layout of the **Extended Service** menu settings in a hierarchical diagram.

Reports	Help T.30 protocol trace SRAM dump Scanner plots Log debug report Task stacks Translations Printer fonts	**Help** prints a menu report for the product.
Memory/softswitch	Softswitches Clear memory Check documents Edit SRAM SRAM dump Firmware version	See "To change the country code softswitch" on page 105.
Control panel	Keypad test LCD test Control panel test Sensor states Speaker test All LCD characters	Various tests under **Control panel** can assist in troubleshooting the product.
Scanner	Scanner plots Scanner LED ADF feed test ADF motor test Do TWAIN scan White ref summary	**Scanner LED** is the contact image sensor light bar test. **ADF feed test** runs the document feeder pickup rollers once. **ADF motor test** runs the document-scanner motor.
Self-test	Burn-in Individual diagnostics System reset	**Burn-in** prints a report after running the following tests: Program test, Configuration test #1, Fax memory test #2, Modem test #2, Scanner test #1, Scanner LED.
Modem/PTT	Modem tone Modem modulation Modem type	

2

Self-test in Extended Service mode

If you perform a self-test from the **Extended Service** menu, the printed report will also show the firmware revision number and details.

Note

Print the internal reports before performing Extended Service mode tests. The reports contain a record of all settings and can assist you in restoring the product to its settings.

The table below lists the tests that are performed during a self-test and the actions to take when tests fail.

Extended Service mode self-test failures

Test	If the test fails, take these actions:
Configuration test #1	Replace the formatter.
Fax memory test #1	
Program test #1	**1** Cycle power by unplugging the power cord from the power source, waiting 10 seconds, and then reconnecting the power cord.
Configuration test #2	
Configuration test #3	**2** If the test fails again, clear all memory (see "Extended Service menu tree" on page 99).
Configuration test #4	
Fax memory test #2	**3** If the test fails again, replace the formatter.
Fax memory test #3	
Fax memory test #4	
Fax memory test #5	
Modem 1 test #1	
Modem 1 test #2	
Modem 1 test #3	

Extended Service mode self-test failures (continued)

Test	If the test fails, take these actions:
Modem 1 dial tone detect	**1** Make sure that the telephone cable is plugged into the correct connector on the product and that the telephone line is operational (use a telephone to test the line).
	2 If the test fails again, check the configuration settings in the control panel.
	3 If the test fails again, replace the LIU.
Scanner test #1	This test fails under normal conditions if the document scanner is busy. If the document scanner is not busy:
	1 Cycle power by unplugging the power cord from the power source, waiting 10 seconds, and then reconnecting the power cord.
	2 If the test fails again, clear all memory (see "Extended Service menu tree" on page 99).
	3 If the test fails again, replace the formatter.

2

Other tests in Extended Service mode

The following chart shows tests that can be performed in Extended Service mode and provides a brief explanation of each test:

Extended Service mode tests

Test	Explanation
Keypad test	Tests that all buttons are functioning (by pressing the buttons in sequence).
LCD test	Tests the control-panel display.
Control panel test	Tests the control-panel lights.
Sensor states	Shows current detector activation levels. Detector 1 and detector 2 are paper-size detectors. The control-panel display shows the percentage of time each detector is activated.
All LCD characters	Scrolls through the full list of control-panel display characters.
Scanner plots	Tests and recalibrates the document scanner.
Scanner LED	After selecting this menu item, lift the document-release door, and verify that all of the LEDs in the contact image sensor are lit.
ADF feed test	Runs the document-scanner pickup rollers once.
ADF motor test	Runs the document-scanner motor once.
Individual diagnostics	Run individual tests from the self-test sequence (see the Extended Service mode self-test failures table).
Modem tone	Generates tones with various frequencies from 300 Hz to 2425 Hz.
Modem modulation	Generates various fax identification signals.

Reports in Extended Service mode

The following chart shows reports that can be printed from Extended Service mode and provides a brief explanation of each report.

Extended Service mode reports

Report	Explanation
T.30 protocol trace	Prints a report of the G3 protocol transmissions and receptions.
SRAM dump	Prints SRAM address values in an address range that you select.
Scanner plots	Prints the calibration page.
Log debug report	Prints detailed fax and memory address information. Fax information includes job number, start time used, fax ID, transmission type, pages, communication mode, and status.
Task stacks	Prints address locations of various tasks.
Translations	Prints text strings used in the display beginning with the number you select. These text strings are printed in the language currently in use by the product. Compare the numbers in this report to the numbers in an English report to translate non-English messages on the display.
Printer fonts	Prints all characters of fonts available in memory.
Firmware version (under "memory/ softswitch")	Shows firmware revision information on the control-panel display.
White reference summary (under "scanner")	Displays average, minimum, and maximum white reference values.

2

Clear memory in Extended Service mode

CAUTION

Clearing memory clears all parameters, which can render the product illegal or inoperable. Print the internal reports before clearing memory in Extended Service mode. The reports contain a record of all settings and can assist you in restoring the product to its settings.

To perform a system reset, use Extended Service mode to choose MEMORY/SOFTSWITCH, and then choose CLEAR MEMORY. Use < and > to select the memory you want to clear:

- DOCUMENTS (AND LOG) deletes all documents stored in memory and all log information.

- PHONEBOOK deletes all numbers stored in the phone book.

- CONFIGURATION resets all menu settings printed in the configuration report to their defaults.

- SOFTSWITCHES resets all softswitches but the country code softswitch to their defaults.

- COUNTERS resets all page counts except the total number of pages printed. These page counts are printed at the end of the configuration report.

- EVERYTHING deletes and resets all of the above. Information retained consists of the white reference curve, total page count, country code, and serial number.

Softswitches

Any time the RFI shield is removed from the printer, or when softswitches are reset to defaults, the country code softswitch must be reset.

Extended Service mode allows you to change softswitches on the printer. A softswitch is a set of one to eight bits (a sequence of eight 1's and 0's), as needed. See the software technical reference for a complete list of softswitches.

2

To change the country code softswitch

1 Press **BACKSPACE#**** to gain access to the **Extended Service** menu.

2 Press **<** or **>** until MEMORY/SOFTSWITCHES appears below SERVICE on the control panel.

3 Press **ENTER/MENU**.

4 If SOFTSWITCHES does not appear below MEMORY/SOFTSWITCHES on the control panel, press **<** or **>** until it appears.

5 Press **ENTER/MENU**.

6 Use the keypad to enter **101** (the "country code" softswitch).

7 Press **ENTER/MENU**.

8 Use the keypad to enter the sequence that corresponds to the country in which the product is used. (See the list of country code softswitch sequences on the following page.)

Country code softswitch sequences

Country	Code	Country	Code
Australia	00001011 (0B hex)	Malaysia	00100000 (20 hex)
Austria	00011001 (19 hex)	Mexico	00101011 (2B hex)
Belgium	00001110 (0E hex)	Netherlands	00001101 (0D hex)
Canada	00101001 (29 hex)	New Zealand	00001111 (0F hex)
China	00010100 (14 hex)	Norway	00000101 (05 hex)
Denmark	00001100 (0C hex)	Poland	00011011 (1B hex)
Eire (Ireland)	00000010 (02 hex)	Russia	00011101 (1D hex)
Finland	00001000 (08 hex)	Singapore	00010001 (11 hex)
France	00000111 (07 hex)	Spain	00011000 (18 hex)
Germany	00000110 (06 hex)	Sweden	00000100 (04 hex)
Hong Kong	00010011 (13 hex)	Switzerland	00000011 (03 hex)
Hungary	00010010 (12 hex)	Ukraine	00101110 (2E hex)
Israel	00010110 (16 hex)	United Kingdom	00000001 (01 hex)
Italy	00001010 (0A hex)	United States	00000000 (00 hex)

9 Press **ENTER/MENU** to complete the softswitch change.

10 Press **STOP/CLEAR**.

11 Enter **BACKSPACE#**** to exit the **Extended Service** menu.

Note

If you do not complete step 11 above, the printer will exit
Extended Service mode within a few minutes.

Firmware and software downloads

Newer versions of the firmware and software for the HP LaserJet 3100/3150 product can be downloaded to the product from the following websites:

- http://www.hp.com/support/lj3100/
- http://www.hp.com/support/lj3150/

After you connect to the site, click **Drivers and Software**. Locate and click the firmware or software you want to download, and then click **Download Now**.

Note

Write down the path and default directory to which the firmware or software file is downloaded. You will have to access the file once downloading is complete.

Detailed instructions about how to install the newer firmware and software are available at the website, including instructions for manual installation.

Hardware, software, and firmware compatibility

The only way to ensure complete software and firmware compatibility with the printer formatters and control panels is to have either:

- HP LaserJet 3100 product components with no HP LaserJet 3150 product components

   or

- HP LaserJet 3150 product components with no HP LaserJet 3100 product components.

2

Recalibration of the document scanner

Recalibrate the document scanner if you notice that copies, items scanned to the computer, or faxes you send have black or white lines running through them.

To recalibrate the document scanner

1 Clean the HP LaserJet 3100/3150 product before recalibrating it. (See "Maintenance" in the product service manual.)

2 Before recalibrating the document scanner, open the document scanner and place a page that contains the black or white lines between the guides just above the contact image sensor glass. The black or white line points to a portion of the glass that requires extra attention.

3 Clean the contact image sensor glass at the point indicated by the black or white line.

CAUTION

If toner is the contaminant, you might have to scrape it off of the glass. Be careful not to scratch the glass.

4 Print a demonstration page by pressing **VOLUME** and **CONTRAST** simultaneously.

5 Copy the demonstration page.

6 If the vertical black or white line appears on the copy of the demonstration page, continue with steps 7 through 12 below.

7 On the control panel, press **ENTER/MENU**.

8 Press **<** once to display SERVICE, and then press **ENTER/MENU**.

9 Use **<** and **>** to select SCAN CORRECTION, and then press **ENTER/MENU**.

10 Insert a blank, bright white piece of letter-sized paper into the document-feeder tray.

   The HP LaserJet 3100/3150 product pulls the piece of paper through and prints a calibration graph.

To calibrate the document scanner (continued)

11 Examine the calibration graph. A dip in the calibration graph can indicate an image defect.

Note

Dips at the ends of the calibration graph are normal.

12 Line up the calibration graph with a newly copied page. If the dip in the calibration graph corresponds to the black or white line, the contaminant is likely internal, and the contact image sensor assembly should be replaced.

2

LJ 3200 Service mode functions

Secondary Service menu

Use the **Secondary Service** menu to perform various tests and print service reports. Below is a hierarchical diagram of the **Secondary Service** menu.

Main menu	Submenu	Submenu
Secondary Service	Secondary reports	Continuous self-test Data store report Ext keypad map
	Scanline data	Red-corrected Blue-corrected Green-corrected Red-uncorrected Blue-uncorrected Green-uncorrected

To gain access to the Secondary Service menu

1 Make sure that READY appears on the control-panel display.

2 Press **ENTER/MENU**.

3 Press **1** on the one-touch keypad.

4 Use **<** and **>** to navigate to the **Secondary Service** menu.

Developer's menu

Use the **Developer's** menu to adjust fax data-store parameters and to run various tests. Below is a hierarchical diagram of the **Developer's** menu.

Main menu	Submenu	Submenu
Developer's menu	R/W parameter	
	Monitor test	Onhook monitor Offhook monitor Eavesdrop monitor Signal power monitor
	LIU test	LIU inputs LIU ID
	Loopback test	
	Transmit test	

To gain access to the Developer's menu

1 Make sure that READY appears on the control-panel display.

2 Press **ENTER/MENU**.

3 Press ***** and **#** simultaneously, and then release both buttons.

4 Use **<** and **>** to navigate to the **Developer's** menu.

   After you enter the **Developer's** menu, R/W PARAMETER should appear on the control-panel display.

To adjust a country code parameter

Note

Changing the country code does not change the language.

1 Make sure that R/W PARAMETER. appears on the control-panel display.

2 Press **3** on the control-panel keypad, and then press **ENTER/MENU**.

3 Use the control-panel keypad to input the country code (see the table below), and then press **ENTER/MENU**.

CAUTION

Changing country code parameters can render the product illegal or inoperable.

Country codes

Country	Code	Country	Code
Argentina	16	Malaysia	27
Australia	23	Mexico	13
Austria	34	Netherlands	35
Belgium	45	New Zealand	19
Canada	14	Norway	43
China	6	Poland	56
Denmark	40	Portugal	50
Finland	46	Russia	64
France	47	Singapore	30
Germany	39	Spain	55
Greece	49	Sweden	41
Hong Kong	29	Switzerland	36
Hungary	62	Taiwan	7

Country codes

Country	Code	Country	Code
Ireland	44	Ukraine	63
Israel	21	United Kingdom	31
Italy	51	United States	15
Korea	4		

4 Power-cycle the product by unplugging (or turning off) the product and then plugging back in (or turning on) the product.

To adjust a fax data-store parameter

CAUTION

When you adjust fax data-store parameters, the product does not alert you of incorrect input values. Changing fax data-store parameters can render the product illegal or inoperable.

1 Enter the parameter ID number, or use **<** and **>** to locate the parameter you want to change. The control-panel display shows the current setting.

Note

See the service manual for complete lists of fax data -store parameters.

2 Enter the new value for the fax data-store parameter, and then press **ENTER/MENU**.

Diagnostic mode

Use Diagnostic mode to check the functionality of LEDs, the control-panel display LCDs, and to check the firmware version.

Note

Diagnostic mode is available for firmware version 2.2 or later.

To gain access to Diagnostic mode

1 Unplug (or turn off) the product from the power source.

2 Press and hold down **VOLUME**, **STOP/CLEAR**, and **1** on the one-touch keypad simultaneously.

3 Continue to hold down the buttons while you plug back in (or turn on) the product, through the entire power-on sequence.

The table below shows the tests and button sequences to perform in Diagnostic mode.

To perform this test	Press these buttons
Toggle LED1 on/off	**1** or **5** on the one-touch keypad
Toggle LED2 on/off	**2** or **6** on the one-touch keypad
Access LCD pattern 1 (solid fill)	**1** on the numeric keypad, **<**, or **>**
Access LCD pattern 2 (empty fill)	**2** or **8** on the numeric keypad
Access LCD pattern 3 (> fill)	**3** or **9** on the numeric keypad, or **REDUCE/ENLARGE**
Access LCD pattern 4 (H fill)	**4** on the numeric keypad or **3** or **7** on the one-touch keypad
Access LCD pattern 5 (frame fill)	**5** or **0** on the numeric keypad, or **RESOLUTION**
Access LCD pattern 6 (check fill)	**6** on the numeric keypad
Access LCD pattern 7 (ROM check)	**7** on the numeric keypad or **RE DIAL/PAUSE**
Access firmware version number	**#**, *****, or **10** on the one-touch keypad

To check buttons in Diagnostic mode

1 Press **9** on the one-touch keypad.

2 Press each button on the control panel.

3 Press an extra button.

For each button pressed during the test, a + character appears on the LCD (initially, five + characters appear on the screen to account for the 9 on the one-touch keypad and for four other spaces that have no button correspondence).

When all of the buttons have been pressed, the display fills with + characters. If you press any other button after the display is full, an OK message appears on the control-panel display, and both LEDs toggle on and off.

To exit Diagnostic mode

1 Press **VOLUME**, **ENTER/MENU**, and **1** on the one-touch keypad simultaneously.

2 Release the buttons.

2

NVRAM initialization

The NVRAM initialization sets all default variables stored in NVRAM back to factory default values or to a default ROM value, depending on the variable, and performs a system reset.

CAUTION

Performing NVRAM initialization can cause the product to violate local telephone regulations. Reset the language and country code after performing NVRAM initialization.

The NVRAM initialization resets the following:

- All menu settings to factory default values, including fax header and company name
- Factory settings such as formatter number, page counts, and factory paper settings
- Fax memory (all faxes in memory are erased)
- All localization settings, including language and country code

To perform an NVRAM initialization

1 Unplug (or turn off) the printer from the power source.

2 Press and hold down **SYMBOLS** and **ENTER/MENU**.

3 Continue to hold down the buttons while you plug back in (or turn on) the printer, through the entire power-on sequence.

4 When the control-panel display reads PERMANENT STORAGE INITIALIZE or HP LASERJET 3200, release the buttons.

5 Allow the printer to return to the Ready state before using the printer.

PJL software commands

To set the following NVRAM variables:

Factory printer DEFAULT PAPER and scanner factory default paper size will be set to the same value automatically.

Factory printer DEFAULT LPARM:PCL SYMSET

Factory DEFAULT OEM bit

Factory DEFAULT PRINTPAGECOUNT

Factory DEFAULT SCANPAGECOUNT

Factory DEFAULT COPYPAGECOUNT

Default Quick Copy paper size is also stored in the scanner NVRAM, but is changed only through the software or when set back to factory default with an NVRAMINIT. Only Quick Copy image type and contrast have a default value stored in NVRAM. They can only be changed through the software or by NVRAMINIT, which returns them to a ROM default value.

2

The table below provides a more detailed description of the NVRAM PJL factory variables and commands and shows possible settings for each.

NVRAM PJL factory variables

NVRAM PJL variable or command	Possible settings
DEFAULT PAPER	"Letter", "Legal", "A4", "Executive", "Com10", "Monarch", "DL", "C5", "B5", "Custom"
DEFAULT LPARM:PCL SYMSET	"Roman8", "ISOL1", "ISOL2", "ISOL5", "PC8", "PC8DN", "PC850", PC852", "PC8TK", "WINL1", "WINL2", "WINL5", "DESKTOP", "PSTEXT", "VNINTL", "VNUS", "MSPUBL", "MATH8", "PSMATH", "VNMATH", "PIFONT", "LEGAL", "ISO4", "ISO6", "ISO11", "ISO15", "ISO17", "ISO21", "IS060", "ISO69", "WIN30"
DEFAULT OEM	"On", "Off"
DEFAULT PRINTPAGECOUNT	0-2147483647
DEFAULT SCANPAGECOUNT	0-2147483647
DEFAULT COPYPAGECOUNT	0-2147483647
CLEARNVRAM	None (command)
NVRAMINIT	None (command)

NVRAM PJL factory variables

To use the following commands, you need some method to send PJL commands to the printer, either with a software tool or by copying a binary file that contains the commands from the host using an MS-DOS box. For example, from the MS-DOS prompt:

    copy /b filename lpt1

Here is an example of a file that uses one of the commands:

    ESC%-12345X@PJL SET SERVICEMODE=HPBOISEID

    @PJL 'command'

    @PJL RESET

Here is an example of using the NVRAMINIT command:

    ESC%-12345X@PJL SET SERVICEMODE=HPBOISEID

    @PJL NVRAMINIT

    @PJL RESET

Note

Set SERVICEMODE before trying to set the variable or you will not get the desired result. Also, reset the PJL to be sure that the SERVICEMODE status is cleared.

To create these files, you need an editor that can insert the ESC character or is able to copy it in from an existing file. If a software tool is used, simply send the same strings in the same order as given for the example files.

2

LJ 4100 Service mode functions

Service mode should be used only by authorized service personnel.
The following can be done in Service mode:

- Verify and set the page count and serial number. These are shown
  on the configuration page.
- Set the cold-reset paper size default. (This sets the factory default
  paper size to either Letter or A4.)
- Turn the diagnostic functions on or off (for software developers
  only).
- Clear the event log.

Set the interval at which the PERFORM PRINTER MAINTENANCE
message appears on the control-panel display.

Entering Service mode

1 While turning on the printer, hold down **SELECT** and **CANCEL JOB**
   until all of the lights on the control panel are lit.

2 Press the right side of **MENU**, and then press **SELECT**. The message
   SERVICE MODE temporarily appears and will reappear when the
   printer completes the initialization process.

3 To exit Service mode, press **GO**.

Note
   If READY appears in the control panel, the buttons might have been
   released too soon, or the wrong buttons were pressed.

Note
   Before replacing the formatter or firmware DIMM, print a configuration
   page and a menu map to verify the current printer settings. Use the
   information on these pages to reset the customer's printer settings.

Changing settings

The item-count value is changed using a different method from that used for other control-panel values. Instead of increasing the entire value by increments, each digit can be selected and modified individually. The following control-panel buttons are used to modify the page count value:

SELECT   Enters any changes to the current digit and advances the cursor one digit to the right. If the last digit is currently selected, pressing **SELECT** wraps the cursor around to the first digit.

VALUE +   Increases the value of the currently selected digit by one. Pressing **VALUE+** when 9 is the value of the currently selected digit changes the value of the digit to 0.

–VALUE   Decreases the value of the currently selected digit by one. Pressing **–VALUE** when 0 is the value of the currently selected digit changes the value of the digit to 9.

Page count

The page count that is stored in NVRAM and is shown on the configuration page printout represents the number of pages the printer has printed (excluding engine-test prints). If it is necessary to install a new formatter in the printer, the page count must be reset so that it represents the age of the printer engine rather than the age of the formatter.

Note

Before replacing the formatter or firmware DIMM, print a configuration page and a menu map to verify the current printer settings. Use the information on these pages to reset the customer's print settings.

Changing the page count (example)

2

The following table shows the sequence of keystrokes used to change the page count from a value of 000000 to a value of 0010480.

Note

Press the right side of **MENU**, **ITEM**, and **VALUE** to increase the value (**+**). Press the left side of **MENU**, **ITEM**, and **VALUE** to decrease the value (**-**).

Button press	Display	Description
MENU+	SERVICE MENU	Enter the SERVICE MENU.
ITEM+	PAGES=0000000 ✻	Advance to the first item in the SERVICE MENU.
SELECT	PAGES=0000000 ✻	Advance the cursor one digit to the right.
SELECT	PAGES=0000000 ✻	Advance the cursor one digit to the right.
VALUE+	PAGES=0010000 ✻	Increase the value of the third digit by one.
SELECT	PAGES=0010000 ✻	Enter the change to the third digit, and advance the cursor one digit to the right.
SELECT	PAGES=0010000 ✻	Advance the cursor one digit to the right.
VALUE+ (4 presses)	PAGES=0010400 ✻	Increase the value of the fifth digit by four.
SELECT	PAGES=0010400 ✻	Enter the change to the fifth digit, and advance the cursor one digit to the right.
-VALUE (2 presses)	PAGES=0010480 ✻	Decrease the value of the sixth digit by two.
SELECT (2 presses)	PAGES=0010480 ✻	Enter the change to the sixth digit, and advance the cursor one digit to the right causing the cursor to wrap to the first digit.
GO		Exit.

Maintenance count

The maintenance page count should be reset only after a maintenance kit has been installed.

This resets the maintenance counter so that the message PERFORM PRINTER MAINTENANCE will appear after another 200,000 pages (default).

1 Hold down **-ITEM** and **-VALUE**.

2 Turn the printer on.

3 Wait for RESET MAINTENANCE COUNT to appear, and then release both buttons.

Maintenance interval

The MAINTENANCE INTERVAL in the **Service Mode** menu sets the page count interval at which the next service is due for the printer. This is set initially at the factory to 200,000 pages. (For example, the PERFORM PRINTER MAINTENANCE message appears at 200,000 pages. If the printer maintenance kit is installed at 200,114 pages, the message reappears 200,000 pages later, at 400,114 pages.) The procedure for editing this number is similar to editing the PAGES item.

Serial number

The printer serial number is stored in NVRAM. If a formatter is replaced, then the printer serial number must be reentered. The procedure for editing this number is similar to editing the PAGES item.

Note
Before replacing the formatter or firmware DIMM, print a configuration page and a menu map to verify the current printer settings. Use the information on these pages to reset the customer's printer settings.

Cold reset paper

The cold-reset paper size is stored in NVRAM. When a printer cold reset is performed, the default paper size (in the **Printing** menu) is set to the value saved for the cold-reset paper size. Possible values are COLD RESET PAPER=LETTER and COLD RESET PAPER=A4. When replacing the formatter in countries that use A4 rather than letter-size paper, set the cold-reset paper size to A4.

Diagnostics

The **Diagnostics** menu item enables or disables the use of the firmware diagnostic features for software development. Possible values are DIAGNOSTICS=OFF* and DIAGNOSTICS=ON. To gain access to the diagnostic features, verify that the printer is in the Ready state, and press **SELECT**.

Clear event log

Select this item to clear the internal event log.

Top margin

This item can be used to adjust the margin between the top of the page and the top of the printed image.

Note

Adjust the top margin value in the software program first. This top margin value does not affect the engine-test top margin.

Before adjusting the top margin through the **Service** menu, first ensure that the engine-test top margin register is properly adjusted.

To set the top margin registration value:

1 Press **ITEM** to scroll through the **Service** menu until TOP MARGIN=07 appears.

2 Press **VALUE** to increase or decrease the margin.

3 Press **SELECT** to save the new margin adjustment.

Tray 1 left margin

This item can be used to adjust the margin between the left side of the pages from tray 1 and the left side of the printed image.

1 Press **ITEM** until TRAY 1 LEFT MARGIN=07 appears.

2 Press **VALUE** to increase or decrease the margin.

3 Press **SELECT** to save the new margin adjustment.

Trays 2 and 3 left margin

2

This item can be used to adjust the margin between the left side of the pages from trays 2 and 3 and the left side of the printed image.

1 Press **ITEM** until TRAYS 2 AND 3 LEFT MARGIN=07 appears.

2 Press **VALUE** to increase or decrease the margin.

3 Press **SELECT** to save the new margin adjustment.

Testing the printer

When you print a configuration page, the printer checks its internal controller and I/O interface and then prints a test page. You can review the configuration page printout to verify proper installation of such options as paper trays or printer languages. For more information, see the service manual.

Engine test

The printer has a built-in test pattern (pairs of vertical lines). The test print can be made by pressing the test-print switch located on the left side of the printer once after the photosensitive drum has stopped and the printer has entered the Standby mode. If the switch is held down, the test pattern is printed continuously. The switch can be used when media is loaded in any tray other than tray 1.

Note
> For the printer to perform an engine test, tray 2, 3, or 4 must be installed and loaded with media, and the toner cartridge must be installed in the printer.

Resetting the printer

Cold reset

Cold reset clears all data from the printer memory and sets many of the defaults back to the factory settings.

CAUTION

Performing a cold reset resets the HP Jetdirect configuration. To avoid making changes to your configuration, remove the HP Jetdirect card before performing a cold reset.

If possible, print a configuration page and a menu map to verify the current printer settings. Use the information on these pages to reset the customer's printer settings.

To perform a cold reset:

1 Print a configuration page and a menu map.

2 Turn on the printer while holding down **GO**.

3 When COLD RESET appears on the control-panel display, release **GO**.

Clearing NVRAM

This procedure will clean up the NVRAM by removing old areas that are not being used.

1 Turn off the printer.

2 Hold down the **CANCEL JOB**, and then turn on the printer.

3 When CLEANUP NVRAM appears on the control-panel display, release **CANCEL JOB**.

NVRAM initialization

Initialization of NVRAM should always be executed immediately after replacing the formatter board. This procedure aligns the firmware with the formatter. Not initializing NVRAM could result in deterioration of print quality.

CAUTION

Initializing NVRAM will erase several of the memory settings (including page count, printer serial number, and the event log).

Note

Before initializing NVRAM, print a configuration page and a menu map to verify the current printer settings. Use the information on these pages to reset the customer's printer settings.

To initialize NVRAM

1 Print a configuration page and a menu map.

2 Turn off the printer.

3 Remove all formatter accessories (EIO cards, hard drive, DIMMs, accessories, and so forth).

4 While turning on the printer, hold down **SELECT** and **CANCEL JOB** until all of the lights on the control panel are lit.

5 Press **CANCEL JOB** and then **SELECT**. The NVRAM INIT message appears on the control-panel display.

6 After initializing the NVRAM, use Service mode to reenter the settings from the configuration page.

To initialize the hard disk

1 Print a configuration page and a menu map.

2 Turn off the printer.

3 While turning on the printer, hold down **SELECT** and **CANCEL JOB** until all of the lights on the control panel are lit.

4 Press **MENU-** and then **VALUE-**.

5 Press **SELECT**.

3 Power supply

Chapter contents

AC and DC power distribution

HP LaserJet 1200 Series printer

The AC, DC, and high-voltage power-supply circuits are all contained within the ECU.

AC power distribution

The AC power circuitry supplies AC voltage whenever the power cord is connected to the AC power source. The AC voltage is distributed to the DC power supply circuitry and to the AC driver circuitry, which controls AC voltage to the fuser-assembly heating element.

DC power distribution

The DC power distribution circuitry, located on the ECU, distributes +3.3 VDC, +5 VDC, and +24 VDC as follows:

+3.3 VDC:	Formatter
	Laser/beam-detect circuitry ECU
	Photosensors
+5 VDC:	Formatter
	ECU
	Laser/beam-detect circuitry
+24 VDC:	Motor
	Exhaust fan
	Laser/scanner motor
	Document-scanner motor
	Solenoid
	Formatter (routing only)
	High-voltage power supply
	Fuser-safety circuit

Overcurrent/overvoltage

There are two overvoltage devices in this printer:

- Fuse F101 provides overcurrent protection for the fusing system circuitry. Checking or replacing the fuse requires the removal of the ECU. Fuse F102 provides overcurrent protection to the printer DC power-supply circuitry.

- In addition, the +24 VDC and +3.3 VDC power circuitry contains an overcurrent protection circuit that automatically shuts off the output voltage when an overcurrent condition occurs as a result of a short or an abnormal voltage on the load side.

3

HP LaserJet 2200 Series printer

- The power switch supplies AC power to the low-voltage power-supply circuit when it is turned on. This circuit supplies DC voltage (+24 V, +5 V, +3.3 V) to the main motor, laser/scanner unit, interlock switch, formatter, solenoids, paper feeder, high-voltage power supply, and formatter.

- The DC voltage supplied to the high-voltage power-supply circuit is interrupted when the top cover is open.

- The overcurrent/overvoltage protection circuit in the low-voltage power supply automatically turns off the output voltage when an overcurrent condition occurs because of a short or abnormal voltage on the load side.

- When input power is turned off and then on, the protection circuit automatically resets. The low-voltage power-supply circuit also contains a fuse that shuts off the power supply to the circuit when overcurrent conditions occur.

In response to the engine controller PCB, the high-voltage power-supply circuit supplies DC and AC voltage to the various parts of the image formation system.

HP LaserJet 3100 and 3150 Series printer

The AC, DC, and high-voltage power supply circuits are all contained within the ECU.

AC power distribution

The AC power circuitry supplies AC voltage whenever the power cord is connected to the AC power source. The AC voltage is distributed to the DC power supply circuitry and to the AC driver circuitry, which controls AC voltage to the fusing assembly's heating element.

DC power distribution

The DC power distribution circuitry, located on the ECU, distributes +5 VDC and +12 VDC as follows:

3

+5 VDC: Formatter
           Photosensors
           DC-controller circuitry
           Laser/beam-detect circuitry

+12 VDC: Motor
           Scanner motor
           Solenoid

+12VADC: High-voltage power supply

Overcurrent/overvoltage

There are two overvoltage devices in this printer:

- Fuse F101 provides overcurrent protection for the fixing system circuitry. To check or replace the fuse requires the removal of the ECU. Fuse 102 (found only on 110 V units) provides overcurrent protection to the printer DC power supply circuitry.

- In addition, the +12 VDC and +5 VDC power circuitry contains an overcurrent protection circuit which automatically shuts off the output voltage when an overcurrent condition occurs as a result of a short or an abnormal voltage on the load side.

HP LaserJet 3200 Series printer

The AC, DC, and high-voltage power-supply circuits are all contained within the ECU.

AC power distribution

The AC power circuitry supplies AC voltage whenever the power cord is connected to the AC power source. The AC voltage is distributed to the DC power-supply circuitry and to the AC driver circuitry, which controls AC voltage to the fusing assembly's heating element.

DC power distribution

The DC power distribution circuitry, located on the ECU, distributes +3.3 VDC, +5 VDC, and +24 VDC as follows:

+3.3 VDC:	Formatter
	Laser/beam-detect circuitry ECU
+5 VDC:	Formatter
	Photosensors
	ECU
	Laser/beam-detect circuitry
+24 VDC:	Motor
	Laser/scanner motor
	Document-scanner motor
	Solenoid
	Formatter
+24VAdc:	High-voltage power supply

Overcurrent/overvoltage

There are two overvoltage devices in this printer:

- Fuse F101 provides overcurrent protection for the fusing-system circuitry. Checking or replacing the fuse requires the removal of the ECU. Fuse F102 (found only on 110 V units) provides overcurrent protection to the printer DC power supply circuitry.

- In addition, the +24 VDC, +3.3 VDC, and +5 VDC power circuitry contains an overcurrent protection circuit that automatically shuts off the output voltage when an overcurrent condition occurs as a result of a short or an abnormal voltage on the load side.

HP LaserJet 4100 Series printer

AC/DC power distribution

In this circuit, the AC power input from the power receptacle is converted into DC power. The DC power is supplied to the loads.

The AC power is supplied to the low-voltage power-supply circuit in the engine controller board when the power switch (SW1) is turned on.

The AC power is converted into +24 VDC, +5 VDC, and +3.3 VDC in the circuit. The +24 VDC is supplied to the main motor, scanner motor, solenoids, clutches, and to the high-voltage power-supply circuit. The +5 VDC is supplied to the laser and formatter, while +3.3 VDC is supplied to the sensors and ICs on the engine controller board.

The +24 VDC is divided into +24 VA, which is constantly supplied from the low-voltage power supply circuit, and +24 VB, which is interrupted when the interlock switch (SW101) is turned off by opening the top cover. The +24 VB is supplied to the high-voltage power-supply circuit on the engine controller board and relay (RL102). It also functions as a door-open detection signal (/DOPEN), so that the CPU detects an open door.

3
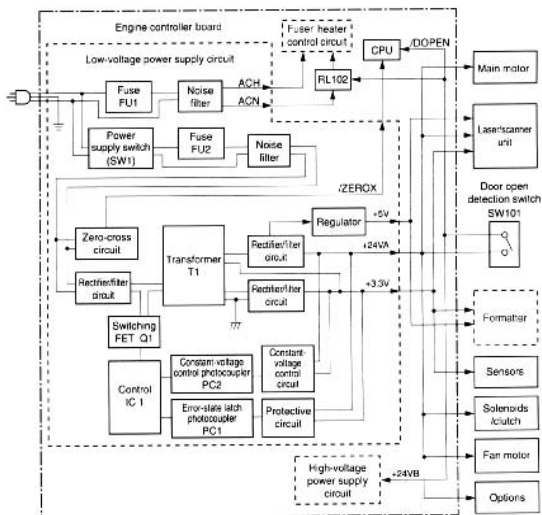
Figure 4   Low-voltage power-supply circuit (LJ 4100 series)

Overcurrent/overvoltage protection

If a short-circuit or other problem on the load side causes an excessive current flow or generates abnormal voltage, the overcurrent/overvoltage protection systems automatically cut off the output voltage to protect the power-supply circuit.

If the overcurrent or overvoltage protection system are activated and the power-supply circuit does not generate DC voltage, it is necessary to turn the power off, correct the problem, and then turn the printer on again.

The circuit has two fuses (FU1, FU2), which break and cut off the output voltage if overcurrent flows through the AC line.

Fuser over-temperature protection

The fusing-heater safety circuit is located on the engine controller board and constantly monitors the fusing temperature.

3

To protect the fuser from excessive temperatures, the printer has the following three protective functions:

- The CPU monitors the voltage of the FSRTH1 and FSRTH2 thermistor signals. If the fuser temperature reaches 240° C (464° F), then the CPU turns off the relay (RL101) to interrupt the power to the fusing heater.

- If the temperature of the fusing heater continues to rise abnormally, and the temperature of the thermal switch (TP101) exceeds about 250° C (482° F), TP101 opens up to cut off the power supply to the fusing heater.

- The power supply on the coil side of RL101 and RL102 is connected to +24 VB. When the top cover is opened, the power supply to RL101 and RL102 is cut off, and the relay is turned off.

Protection systems

Problems on the load side, such as short circuits, can cause an excessive flow of current from the DC power supplies or can generate abnormal voltage. When this happens, the excess-current and excess-voltage protection systems automatically shut off the output voltage to protect the power supplies.

If the protection systems are activated and the power-supply circuit does not output DC voltage, turn the printer off, correct the problem in the faulty load, and then turn the printer on again.

4 Input/output (I/O)

Chapter contents

Bidirectional interfaces

The formatter receives incoming data through its bidirectional interface (IEEE 1284) or USB interface. The parallel interface or USB interface both provide high-speed, two-way communication between the printer and the host, letting the user change printer settings and monitor printer status from the host computer.

Note

LJ 4100 only: The user can configure the HIGH SPEED item in the **Control Panel** menu. The default setting, YES, allows the I/O to run at higher speeds supported by most newer computers. When set to NO, the parallel interface runs at a slower mode that is compatible for older computers. The user can also configure the ADVANCED FUNCTIONS item. The default setting, ON, allows for two-way parallel communications. The OFF mode disables this advanced functionality. The I/O is compatible with the bidirectional parallel interface standard.

Attaching the parallel cables

The printer's parallel port can have one or both of the following connectors:

- B-type parallel (large)
- C-type parallel (small)
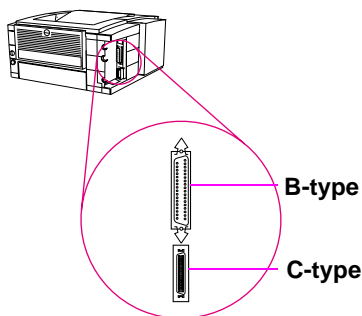
Figure 5   Printer-interface connections

4

Network interfaces

LocalTalk I/O

The printer implements AppleTalk networking protocol through LocalTalk hardware. The LocalTalk network cable is connected through the EIO card.

Note
> This feature applies to the LJ 2200 and LJ 4100 only.

Expanded I/O

The optional expanded I/O card can be installed in the slots provided on the formatter PCA. The expanded I/O card provides automatic I/O switching between multiple computers or networks connected to the printer.

Note
> This feature applies to the LJ 2200 and LJ 4100 only.

EIO disk

The optional EIO-based hard disk is used for creating multiple original prints (mopies) and for storing forms, fonts, and signatures.

Note
> This feature applies to the LJ 4100 only.

IR interface

The FIR port is located on the lower right corner of the 2200 printer or is available as an accessory on the 4100 printer. This port is compliant with the specifications determined by the IrDA. On the right side of the FIR port is a status light that indicates when the port is active. The FIR port transmits data at speeds of up to 4 MB per second. When the infrared (IR) connection is established, the FIR status light comes on. If the connection is broken, or when the print job is complete, the FIR status light goes off.

Note
>   This feature applies to the LJ 2200 and 4100 only.

Using the FIR port

To use the FIR port, you need the following:

- A computer or PDA equipped with an IrDA-compliant IR port
- An infrared port driver that allows printing from the computer to the printer using the FIR port and the IrDA communication protocol
- A computer with a printer driver installed to generate data that the printer can print

Note
>   Check with your computer hardware or operating system manufacturer for the correct port driver.

To operate the FIR port, you need to meet the following conditions:

- A portable computer (or other portable device equipped with an IrDA-compliant IR window) aligned within 1 meter (2 to 3 feet maximum) of the HP Fast InfraRed Receiver.
- The IR window must be at an angle of +/- 15 degrees to ensure an effective connection for printing.

4

Communications troubleshooting

Communications check

Note

Communication problems are normally the customer's responsibility. Time spent attempting to resolve these problems might not be covered by the Hewlett-Packard warranty.

Test message

After the printer is installed, verify communications between the printer and the IBM-compatible computer.

1 To print to parallel port 1, type the following at the MS-DOS prompt:

C:\DIR>LPT1

2 Press **ENTER**.

The printer should print a directory listing of the C: \ directory.

EIO troubleshooting

Before attempting to troubleshoot a network problem or to notify the network consultant of a problem, always print a configuration page.

See the *HP Jetdirect Print Server Software Installation Guide* for detailed explanations of network issues (go to http:/www.hp.com/go/Jetdirect).

Note

Refer the customer to the network administrator for assistance in troubleshooting network problems.

Maximum I/O cable lengths

For information about cables used for a specific HP LaserJet printer, see chapter 7.

Cable	Length
Parallel (non-IEEE-1284)	3 meters (10 feet)
Parallel (IEEE-1284) with "B" type connector	3 meters (10 feet)
Parallel (IEEE-1284) with "C" type connector	3 meters (10 feet) 10 meters (33 feet)
USB	2 meters (5 feet)

4

5 Media specifications

Chapter contents

Paper sizes

For complete paper specifications for all HP LaserJet printers, see the
HP LaserJet Printer Family Print Media Guide.

Metric system

Size	Metric dimensions	U.S. dimensions
A3	297 by 420 mm	11.7 by 16.5 in
A4	210 by 297 mm	8.3 by 11.7 in
A5	148 by 210 mm	5.8 by 8.3. in
B4 (ISO)	250 by 353 mm	9.8 by 13.9 in
B5 (ISO)	176 by 250 mm	6.9 by 9.8 in

Imperial (U.S.) system

Size	U.S. dimensions	Metric dimensions
Ledger	11 by 17 in	279 by 432 mm
Legal	8.5 by 14 in	216 by 356 mm
Letter	8.5 by 11 in	216 by 279 mm
Executive	7.3 by 10.5 in	191 by 267 mm
Custom	5.8 by 8.2 in to 8.5 by 14 in	148 by 210 mm to 216 by 356 mm
JIS B4*	10.1 by 14.3 in	257 by 364 mm
JIS B5*	7.2 by 10 in	182 by 257 mm
J postcard**	3.9 by 5.8 in	100 by 148 mm
J double postcard*	5.8 by 7.9 in	148 by 200 mm
* JIS Japanese Industry Standard ** J - Japanese		

Paper specifications

Paper specifications

Category	Specification
Acid content	5.5 pH to 8.0 pH
Basis weight (1200 series): Paper-input tray Priority-input tray	75 g/m2 (20 lb) 75 g/m2 (20 lb)
Basis weight (2200 series): Tray 1 Tray 2 Tray 3 (250-sheet feeder) Tray 3 (500-sheet feeder) Duplexer	60 to 163 g/m2 (16 to 43 lb) 60 to 105 g/m2 (16 to 28 lb) 60 to 105 g/m2 (16 to 28 lb) 60 to 105 g/m2 (16 to 28 lb) 60 to 105 g/m2 (16 to 28 lb)
Basis weight (3100 and 3150 series): Paper-input bin Single-sheet input slot Document-feeder tray	60 to 105 g/m2 (16 to 28 lb) (up to 157 g/m2 [42 lb] using the front output slot) 60 to 105 g/m2 (16 to 28 lb) (up to 157 g/m2 [42 lb] using the front output slot) 44 to 105 g/m2 (12 to 28 lb) (up to 252 g/m2 [67 lbs] using the special-media lever)
Basis weight (3200 series): Paper-input tray Single-sheet input slot	75 g/m2 (20 lb) 75 g/m2 (20 lb)
Basis weight (4100 series): Tray 1 Trays 2, 3, and 4 Duplexer Optional envelope feeder	60 to 199 g/m2 (16 to 53 lb) 60 to 105 g/m2 (16 to 28 lb) 60 to 105 g/m2 (16 to 28 lb) 75 to 105 g/m2 (20 to 28 lb)
Caliper	Dependent upon basis weight
Curl in ream	Flat within 5 mm (0.2 in)
Condition of cut edge	Cut with sharp blades with no visible fray
Fusing compatibility	Must not scorch, melt, offset, or release hazardous emissions when heated to 175° to 230° C (347° to 446° F) for 0.1 second

5

Category	Specification
Grain	long grain **Note** If paper is greater than 135 g/m2 (36 lb) use short grain.
Moisture content	4 percent to 6 percent by weight
Smoothness	100 to 250 Sheffield

U.S. paper grades

The U.S. paper grading system has evolved from custom and usage rather than from a technical background, resulting in similar papers having different stated weights. For example, a 24# bond paper is exactly the same weight as a 60# book or a 60# text or a 33# cover. This is because basis weight is defined as the weight of 500 sheets of paper cut to basic size. The basic size for bond, book/text, cover, index, bristol, and tag are all different so the given weights for these paper grades might be different although the physical weight is virtually identical. The following tables will help clarify these differences. Note the difference in basic size for each grade, which affects the weight of 500 sheets of that grade:

U.S. paper grades: basic sizes and basis weights

Paper grade	Basic size	Basic area	Factor	Equivalent basis weights (example)
Bond	17 by 22 in	374.0 sq.in	1.00	24# bond
Text	25 by 38 in	950.0 sq. in	2.54	61# text
Book (coated or uncoated)	25 by 3 in	950.0 sq. in	2.54	61# book
Cover	20 by 26 in	520.0 sq. in	1.39	33# cover
Bristol	22.5 by 28.5 in	641.25 sq. in	1.71	41# bristol
Index	25.5 by 30.5 in	777.75 sq. in	2.08	50# index

U.S. paper grades: basic sizes and basis weights

Tag	24 by 36 in	864.0 sq. in	2.31	55# tag
Metric weight	none	none	3.76	90 g/m^2

Weight equivalence table

The following rows show equivalent weights for different grades of paper. Shaded boxes indicate a commonly available standard weight for that grade.

Weight equivalence table

Bond weight (17 x 22 inches)	Book weight (25 x 38 inches)	Cover weight (20 x 26 inches)	Bristol weight (22.5 x 28.5 inches)	Index weight (25.5 x 30.5 inches)	Tag weight (24 x 36 inches)	Metric
16#	41#	22#	27#	33#	37#	60 g/m^2
17#	43#	24#	29#	35#	39#	64 g/m^2
20#	50# *	28#	34#	42#	46#	75 g/m^2
21#	54#	30#	36#	44#	49#	80 g/m^2
24#	60# *	33#	41#	50#	55#	90 g/m^2
27#	68#	37#	45#	55#	61#	100 g/m^2
28#	70# *	39#	49#	58#	65#	105 g/m^2
29#	74#	41#	50#	61#	68#	110 g/m^2
32#	80# *	44#	55#	67#	74#	120 g/m^2
36#	90#	50#	62#	75#	83#	135 g/m^2
39#	100#	55#	67#	82#	91#	148 g/m^2
40#	101#	55#	68#	83#	92#	150 g/m^2
43#	110#	60#	74#	90#	100#	163 g/m^2
45#	115#	63#	77#	94#	104#	170 g/m^2
47#	119#	65#	80#	97#	108#	176 g/m^2
51#	128#	70#	86#	105#	117#	190 g/m^2
53#	134#	74#	90#	110#	122#	199 g/m^2
54#	137#	75#	93#	113#	125#	203 g/m^2
58#	146#	80#	98#	120#	133#	216 g/m^2
65#	165#	90#	111#	135#	150#	244 g/m^2
66#	169#	92#	114#	138#	154#	250 g/m^2
67#	171#	94#	115#	140#	155#	253 g/m^2

Weight equivalence table (continued)

Bond weight (17 x 22 inches)	Book weight (25 x 38 inches)	Cover weight (20 x 26 inches)	Bristol weight (22.5 x 28.5 inches)	Index weight (25.5 x 30.5 inches)	Tag weight (24 x 36 inches)	Metric
70#	178#	98#	120#	146#	162#	264 g/m^2
72#	183#	100#	123#	150#	166#	271 g/m^2

Note

Text and book grades marked with an * actually calculate out to 51, 61, 71 and 81 but are rounded to standard book weights of 50, 60, 70 and 80.

5

Troubleshooting media problems

Paper problems can be difficult to detect. The following series of steps will help isolate media-induced problems versus printer problems:

• Isolate a paper path.
• Isolate a brand of media.
• Isolate a type of media.
• Evaluate media-use practices.
• Evaluate environmental conditions.

Here are some media usage tips:

• Turn the media over and print on the other side. Doing so often corrects excess paper curl.
• Rotate the media 180° (end-for-end) to feed a different leading edge. This can help correct multi-sheet feeding problems.

Media to avoid

• carbonless media
• media that has been preprinted (such as letterhead) with ink that will not withstand fuser heat (175° to 230° C [347° to 446° F] for 0.1 second)
• plastic-fiber media
• embossed media
• media with cutouts or perforations
• chemically treated media
• coated media
• synthetic media
• multipart forms
• odd-sized media

If your printer is having trouble with jams, multi-feeds, or misfeeds, try using HP 20 lb multi-purpose paper (part number 9300-2092) or HP 24 lb LaserJet paper (part number 9300-2091).

General tips

Paper curl

Paper curl results from both the heating process used to bond the print image (toner) to the media and from the path that the media must negotiate through the printer.

Take the following actions to help reduce paper curl:

1 Turn the media over in the input tray. Some media packages (reams) have an arrow indicating the preferred printing side. Experiment to determine which orientation yields the least curl.

2 Try a different output paper path (if available for your printer). Using the "face-up" output path might yield more acceptable results than the standard "face-down" output bin.

3 Protect the media from adverse environmental conditions prior to use. Media designed for laser printing has an initial moisture content of 4 to 6 percent, which is maintained as long as it is stored properly. After the media has been removed from its packaging, it will dry out or absorb additional moisture, depending on the environment. Excess moisture in the media will increase the amount of curl.

4 Try a different type or brand of media. Not all media is designed for laser printing.

Much of the paper curl that is induced by the laser printer fusing process will tend to relax within the first 24 hours following printing. However, the curl on the leading edge of the page might remain longer because the leading edge tends to remain in contact with the fusing roller for longer periods.

5

Envelope specifications

Envelope specifications

Category	Specifications
Basis weight	**All printers except LJ 2200**: Should not exceed 105 g/m2 (28 lb) **LJ 2200 printer only**: 100 g/m2 (27 lb)
Caliper	0.084 to 0.14 mm (3.3 to 5.5 mils) single-layer thickness
Curl	**All printers except LJ 2200:** Less than 6 mm (0.25 in) curl across entire surface **LJ 2200 printer only:** Less than 5 mm (0.2 in) curl across entire surface
Finishing	Accurate, sharply creased folds with no more than two thicknesses of paper at the leading edge
Fusing compatibility	Must not scorch, melt, offset, or release hazardous emissions when heated to 175° to 230° C (347° to 446° F) for 0.1 second
Moisture content	4 percent to 6 percent by weight
Paper	Must meet all the normal paper specifications
Smoothness	100 to 200 Sheffield

Envelope sizes

Size	U.S. Dimensions	Metric Dimensions
Tray 1: Minimum Maximum	3 by 5 in 8.5 by 14 in	76 by 127 mm 216 by 356 mm
Optional envelope feeder: Minimum Maximum	3.5 by 6.3 in 7 by 10 in	90 by 160 mm 178 by 254 mm

Envelopes to avoid

Do not use the following envelopes:

- with clasps, snaps, or tie strings
- with transparent windows, holes, perforations, or cutouts
- having an open flap with adhesive exposed
- having paper, inks, adhesives, or materials that discolor, melt, offset, or release hazardous emissions when exposed to 175° to 230° C (347° to 446° F)
- having extremely smooth, shiny, rough, textured, or deeply embossed surfaces
- damaged, wrinkled, or irregularly shaped
- constructed with encapsulating adhesives that do not require moistening, but rely instead on pressure to seal them

5

Preventing jams caused by envelopes

When you are printing on envelopes, use these preventive measures to avoid printer malfunctions.

- Carefully feed the envelopes into the printer.
- Be aware of the envelope's construction.

Envelope feeding

Follow these preventive measures when feeding envelopes:

- Envelopes can be manually fed through the printer, or they can be fed automatically through an envelope tray or feeder.
- Closely inspect the leading edge of the envelopes before feeding them into the printer.
  - Ensure that the leading edge is flat.
  - Do not use envelopes with excessive curl.
  - Flatten the leading edge of the envelope before printing.
- Wait an appropriate time; in manual-feed mode, the printer displays a message when it is ready to accept the next envelope. Wait for this message to appear before inserting the next envelope.
- Do not allow a large quantity of envelopes to accumulate in the output bin.
- On most printers, use the rear (or front) output bin (if available) when printing envelopes. Do not use the top (face-down) output bin.

Envelope construction

- The corner folds need to be well-creased, with no more than two thicknesses of paper.
- The envelopes must lie flat.
- The paper grain should be diagonal to the direction of the feed.
- Adhesives must meet HP specifications for fusing compatibility.
- Basis weight must not exceed 105 g/m2 (28 pounds).
- Do not use envelopes with clasps, snaps, tie strings, or windows.
- Do not use envelopes made of synthetic materials.

Label specifications

Label specifications

Category	Specifications
Adhesive	Must not be on any external surfaces of the label before, during, or after printing. Label construction and die-cutting must not allow labels to peel off during transport, printing, or fusing.
Caliper	**All printers except LJ 2200:** Must not exceed 0.18 mm (0.007 in). **LJ 2200 only:** Must not exceed 0.14 mm (0.005 in).
Curl	In ream: flat within 5 mm (0.2 in).
Finishing precision	Cut sheet within 0.79 mm (0.031 in) of nominal and 0.20° square.
Fusing compatibility	All adhesions, carrier sheets, top sheets, and other materials used in label construction must be compatible with the heat and pressure of the fusing process. Materials must not discolor, melt, offset, or release hazardous emissions when heated to 175° to 230° C (347° to 446° F) for 0.1 second.
Packaging	Use moisture-proof wrap to preserve properties.

5

Preventing jams caused by labels

As with envelopes, prevention is the best way to avoid printer malfunctions caused by adhesive labels. To prevent jams and feed problems, labels must meet the following requirements:

- Be cut long grain (as opposed to short grain).
- Totally cover the carrier sheet (no spaces between labels, no removed labels).
- Contain no excessive glue. (The adhesive should be acrylic-based emulsion and should not come into direct contact with the printer.)
- Meet HP specifications for fusing compatibility.
- Meet HP specifications for caliper.
- Have a carrier sheet that is not too smooth.
- Use the flat paper path (manual feed slot and rear, or front, face-up delivery door), which is the recommended printing method.

Transparency specifications

Transparency specifications

Category	Specifications
Caliper	0.100 to 0.110 mm (3.9 to 4.3 mils)
Cutting angle	90° ± 0.2°
Finishing precision	Cut sheet to within 0.8 mm (0.03 in) of nominal and ± 0.2° of square.
Fusing compatibility	Overhead transparency material must be compatible with the heat and pressure of the fusing process. Materials must not discolor, melt, offset material, or release hazardous emissions when heated to 175° to 230° C (347° to 446° F) for 0.1 second.
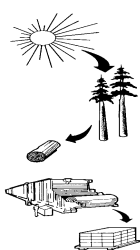
Preventing jams caused by transparencies

Use these preventive measures to avoid printer malfunctions caused by transparencies:

- Use the straightest paper path to avoid curling and other problems.
- Use transparencies with the correct resistivity.
- Use transparencies that meet HP specifications for fusing compatibility.
- Remove each printed sheet from the tray and place it on a flat surface before printing the next sheet.
- Print transparencies to the rear output bin to avoid jams (LJ 2200).

5

HP paper training video

HP has developed a training video that shows how paper is manufactured and how the manufacturing process relates to the use of paper in HP LaserJet printers. Part numbers for the video are shown below.

	Part Number	Version (VHS Format)
The Paper Training video explains the manufacturing process.	5961-0711	National standard television committee (NTSC) version (U.S.)
	5961-0712	European television standard: PAL version (Europe, Asia)

6 Toner cartridge information

Chapter contents

Cartridge weights and page counts

Cartridge weights and page counts

HP LaserJet printer	Product	Full weight	Empty weight	Page count at 5% coverage
LJ 1200 series	C7115A	746.9 gm (26.4 oz)	742 gm (21.8 oz)	2,500
LJ 2200 series	C4096A	1105 gm (39 oz)	900 gm (31.7 oz)	5,000
LJ 3100 and 3150 series	C3906A	730 gm (26.1 oz)	640 gm (22.7 oz)	2,500
LJ 3200 series	C4092A	702 gm (24.7 oz)	594 gm (20.9 oz)	2,500
LJ 4100 series	C8061A	1343 gm (47.4 oz)	1105 gm (39 oz.)	6,000
	C8061X	1490 gm (52.59 oz)	1110 gm (39.18 oz)	10,000

Potential toner cartridge issues

Banding

When printing with a laser printer, the toner is applied across the page in horizontal strips. The page is moved through the printer and toner is continually applied. When printing text or black image pages, a large amount of toner is deposited on the page. As the amount of toner deposited on the page decreases, slight speed variations become more apparent. As the resolution (dots per inch) and the speed (pages per minute) increase, a variation in pattern intensity might appear on the page as lines or bands.

The bands are more visible in certain grayscale patterns. High-speed printers that are capable of printing high-resolution, grayscale patterns are more likely to display the pattern variations. Changing the grayscale pattern or reducing the resolution might significantly reduce the amount of banding that occurs.

Character voids

Small gaps or voids might appear in some of the characters when printing on media other than standard photocopier paper. These "character voids" occur because some print media does not accept the transfer of toner as well as others.

To minimize the occurrence of character voids, avoid using media with a rough finish. Use media that is within the Hewlett-Packard paper specifications listed in the user guide or the *HP LaserJet Printer Family Print Media Guide*. If the finish is too rough, the surface will have large inconsistencies. If the finish is too smooth, toner will not adhere well. Adjusting the print density might affect the severity of character voids.

Toner cracking

When the media is folded and the crease aligns with a line of text, it is possible with certain types of media for the text to break along the line, giving the appearance of a white line through the text. Media that does not meet the smoothness (100 to 250 Sheffield, 100 to 500 Bendtsen) or wax pick (>11 Dennison) is likely to exhibit this effect more than other media.

Toner in the HP LaserJet printers is composed of minute particles of pigmented plastic material (styrene) and iron oxide. When the toner is subjected to the fusing temperature, these individual, iron-impregnated plastic particles become part of a larger plastic image on the page. When the printed page is subsequently folded, the plastic image must also give in some fashion to accommodate the fold. If the print image has been well-set into the paper, the resulting break in the plastic will not be apparent. However, if the toner is unable to adequately penetrate the paper fibers, or if in the process of folding the paper the paper fibers behind the toner break away from the page itself, the result will be a "white line" through the image. There are several ways to minimize this effect:

- Ensure that the media being used meets all of the specifications provided in the *HP LaserJet Printer Family Print Media Guide*, in particular the smoothness and wax pick.

- A lighter density setting will ensure that the toner image will be composed of less plastic material, thus minimizing the resulting effect of trying to fold the toner image.

- For the reasons listed earlier, a more narrow, character-stroke width might also help.

- Magnetic Ink Character Recognition (MICR) paper might fix toner cracking problems (see also the *HP MICR User's Guide*).

In photocopier (laser) printing, using media that has a laid finish often causes problems. The surface roughness of the media is often responsible for the problems.

Media that is stiffer than photocopier paper also causes problems. Stiff media does not fold well. Problems increase when stiff media is folded and a toner image is applied to the media's surface.

Transfer of toner image

After printing a document on an HP LaserJet printer, folding it, and sending it through the mail, you might observe that a portion of the print image was transferred to opposing surfaces of the folded document.

The laser printing process uses a pigmented, plastic powder (toner) to form a print image that is first transferred to a sheet of paper (or other print medium) and then melted (fused) onto the surface of the paper to form a permanent image. Though paper is usually thought of as being "soft," it is actually quite abrasive. When the printed page is folded, movement under pressure between a paper surface and the toner image might cause the paper to scratch the toner, causing a transfer of the toner material onto the opposing surface of the paper. This can be demonstrated by rubbing a print image against a clean sheet of paper.

Some machinery, such as that used by the U.S. Postal Service to sort mail, can apply the necessary pressure and agitation to cause this toner image transfer phenomenon.

To minimize this effect:

- Minimize the amount (or height) of toner used to produce the print image.
- Use a paper that is less abrasive.
- Ensure optimal fusing of the toner (print) image to the paper.

The *amount* of toner used to produce a print image is controlled by the print density dial, slide, or control panel settings in the HP LaserJet printers. The print density should be adjusted for a lighter image to reduce the amount of toner prone to abrasive transfer.

HP LaserJet printers have been designed for optimum results with photocopier (laser) bond papers, such as HP paper. The properties of this type of paper (for example, surface roughness, composition, and moisture content) are such that the other causes of potential toner transfer are minimized. Photocopy papers are typically less abrasive than other types of media (such as writing bond) and are also formulated to ensure optimal fusing of the toner image. Using other types of media will generally yield less than optimal results in laser printers. For help in selecting media suitable for use in the HP LaserJet printers, see the *HP LaserJet Printer Family Print Media Guide.*

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Transfer of toner image (continued)

Because of the way that laser printing is accomplished, currently there is no way to entirely eliminate the possibility of toner transfer. However, using these techniques should yield more satisfactory results and will often reduce the problem to imperceptible levels.

Gray background on envelopes

Poor print quality is normally the result of using envelopes that are of the incorrect weight or finish. The paper used to construct the envelope might be embossed; or might be too heavy, too rough or too slick; or might be made in such a way that it is incompatible with the high temperatures encountered in toner fusing. The result is that the toner does not adhere well to the surface. Also, on heavier envelopes, a gray background might appear on the front (or print side) of the envelope. To reduce the gray background, the print density might need to be set to a darker setting.

Recycling toner cartridges

In many countries, HP toner cartridges can be returned to HP through the HP Printing Supplies Environmental Program. An easy-to-use take-back component of the program is available in more than 20 countries. Multilingual program information and instructions are included in every new HP LaserJet toner cartridge and consumables box.

For more information: call (1) (800) 340-2445 (U.S. only) or visit the HP LaserJet supplies website:

U.S.: http://www.hp.com/ljsupplies/environment_main.html

Europe: http://www.hp.com/pays/eur_supplies/english/planetpartners

Customers outside the United States should call their local HP sales and service office for further information regarding availability of the HP Printing Supplies Environmental Program.

6

Refilled toner cartridges

HP policy on non-HP toner cartridges

Hewlett-Packard Company cannot recommend use of new, refilled, or remanufactured, non-HP toner cartridges. Because they are not HP products, HP cannot influence their design or control their quality.

While Hewlett-Packard Company does not prohibit the use of refilled toner cartridges during the warranty period or while under a maintenance contract, we do not recommend their use for the following reasons:

- Hewlett-Packard has no ability to ensure that a refilled toner cartridge functions at the high level or reliability of a new HP toner cartridge. Hewlett-Packard also cannot predict the long-term effect of the different toner formulations found in refilled cartridges.

- Hewlett-Packard has no control over the print quality of a refilled toner cartridge. The print quality of HP toner cartridges influences the customer's perception of the printer.

Repairs resulting from the use of refilled toner cartridges might not be covered under the HP warranty or maintenance contract.

Toner safety

Handling and storage

WARNING!
Keep toner cartridges and toner particles away from excessive heat, sparks, and open flames.

If toner is spilled, avoid breathing in toner particles. Inhalation of toner particles can cause respiratory tract irritation. Vacuum or sweep the material into a bag or other sealed container. If a vacuum is used, the motor must be rated as dust-tight.

Dispose of waste toner in accordance with local requirements. Do not discharge toner particles in drains.

First aid measures

- **Ingestion**. If toner is ingested, drink several glasses of water. Get medical attention if discomfort persists.
- **Inhalation**. If toner particles are inhaled, move to fresh air immediately. If symptoms occur (such as coughing, dizziness, or difficulty breathing), consult a physician.
- **Eye contact**. If toner comes in contact with the eyes, immediately flush with plenty of water for at least 15 minutes. If irritation persists, consult a physician.
- **Skin contact**. If toner spills on skin, remove as much toner as possible with a dry tissue, and then wash with cold water.

Clothing contact

Note
Toner can stain clothing. Hot water or heat (from a clothes dryer) can cause toner to melt and permanently fuse to clothing.

Clothing is best cleaned by removing as much toner as possible with a dry tissue, and then washing with cold water. Air-dry clothing.

6

7 Printer options and replaceable parts

Chapter contents

Printer options and replaceable parts

Product	Product number	Product description	Service part number
Memory	C4140A	4 MB SDRAM DIMM	C4140-67901
	C4141A	8 MB SDRAM DIMM	C4141-67901
	C7842A	8 MB SDRAM DIMM	C7842-67901 (Europe only)
	C4142A	16 MB SDRAM DIMM	C4142-67901
	C7843A	16 MB SDRAM DIMM	C7843-67901 (Europe only)
	C7844A	24 MB SDRAM DIMM	N/A
	C4143A	32 MB SDRAM DIMM	C4143-67901
	C7845A	32 MB SDRAM DIMM	N/A
	C3913A	64 MB SDRAM DIMM	C3913-67901
	C7846A	64 MB SDRAM DIMM	N/A
	C9121A	128 MB SDRAM DIMM	C9121-67901
Flash memory	C4286A	2 MB Flash DIMM	N/A
	C4287A	4 MB Flash DIMM	N/A
	C7867AD	12 MB SFlash/base	N/A
	C7867AF	12 MB SFlash/E ("M" version)	N/A
	C7867AE	12 MB SFlash/SE	N/A
Firmware	C4168A	Firmware DIMM	C4168-60004
	C7867AK	Firmware DIMM (REV E)(base)	
	C7867AL	Firmware DIMM (REV E)(SE)	
	C7867AM	Firmware DIMM (REV E)(E)	
	C9654AA	Firmware DIMM (REV C)	

1200	2200	3100/3150	3200	4100
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Product	Product number	Product description	Service part number
Fonts	C4292A	Traditional Chinese Font DIMM (8 MB Asian ROM)	N/A
	C4293A	Simplified Chinese Font DIMM (8 MB Asian ROM)	N/A
	D4838A	Korean (8 MB Asian ROM)	N/A
Enhanced I/O cards	J3110A	Ethernet RJ-45 only	N/A
	J3111A	Ethernet RJ-45 and BNC, LocalTalk	J3111-61003
	J4167A	Token Ring	N/A
	J4135A	USB LocalTalk, and Serial	N/A
Hard disk	J6054A	EIO hard disk	J6054-61001
Parallel cables	C2950A	Parallel IEEE-1284 compliant A to B (2.0 m)	N/A
	C2951A	Parallel IEEE-1284 compliant A to B (3.0 m)	N/A
	C2946A	Parallel IEEE-1284 compliant A to C (3.0 m)	N/A
	C2947A	Parallel IEEE-1284 compliant A to C (10.0 m)	N/A
	8121-0004	Parallel cable, A to C	N/A
	8120-8668	Parallel cable, A to C (2 m)	N/A
USB cables	C6518A CPC	USB cable, 2-meter A to B	8121-0539
	8121-8668	USB cable, 2-feet	N/A
Serial cables	92215S	Macintosh computer serial cable	N/A
	92215N	Macintosh network cable kit	N/A

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Product	Product number	Product description	Service part number
Trays	C8055A	500-sheet paper feeder and tray	C8055-67901
	C8056A	Standard 500-sheet tray (without the feeder)	C8056-67901
	C7065A	500-sheet feeder and tray	R75-5009-000CN
	C4793A	250-sheet paper feeder and tray	R75-5001-000CN
		250-sheet cassette (tray 2)	RG5-5580-000CN
Envelope feeder	C8053A	Envelope feeder	C8053-69001
Duplexer	C8054A	Duplexer	C8054-69001
Copier/ Scanner		Optional copier/scanner	R37-5020-000CN
Media	HPM1120	HP multi-purpose paper (letter-size)	M1120
	HPJ1124	HP LaserJet paper (letter-size)	J1124
Toner cartridges	C3906A	Toner cartridge (2,500 pages)	N/A
	C4092A	Toner cartridge (2,500 pages)	N/A
	C7115A	Toner cartridge (2,500 pages)	N/A
	C4096A	Toner cartridge (5,000 pages)	N/A
	C8061A	Toner cartridge (6,000 pages)	N/A
	C8061X	Toner cartridge (10,000 pages)	N/A
	C4097A	Pallet Quantity	N/A
Infrared receiver	C4103A	Fast infrared receiver	C4103-67901

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Product	Product description	Service part number	Exchange number
Maintenance kit	Maintenance kit (110 V)	C8057A	C8057-69001
	Maintenance kit (220 V)	C8058A	C8058-69001
HP Jetdirect print servers	70X	J4155A	N/A
	170X	J3258B	N/A
	175X	J6035-60001	N/A
	300X	J3263	N/A
	500X (for a Token Ring network connection)	J3264	N/A
	500X (for a BNC, 10Base-T, or 10/100Base-TX network connection	J3265	N/A
	600N Ethernet (10Base-T [RJ-45])	J3110A	N/A
	600N Ethernet (10Base-T [RJ-45], 10Base-2 [BNC])	J3111A	N/A
	610N Fast Ethernet (10/100Base-TX [RJ-45])	J4169A	J4169-69001
	Connectivity card (EIO) for USB, Serial, LocalTalk	J4135A	J4135-61001

1200	2200	3100/3150	3200	4100
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Ordering parts

Parts can be ordered through HP's Customer Services and Support Organization (CSSO) at:

- (1) (800) 227-8164 (U.S. only)
- (49 7031) 142253 (Europe only)

For more service and support information, see chapter 11.

8 Printer parts

Chapter contents

Ordering printer parts

To order printer parts, call the Customer Services and Support Organization (CSSO):

- (1) (800) 227-8164 (U.S. only)
- (49 7031) 142253 (Europe only)

For more service and support information, see chapter 11.

Note

This chapter provides the part numbers and descriptions of the most commonly used assemblies and subassemblies in the HP LaserJet printers. See your printer service manual for a complete listing of hardware components.

Common hardware

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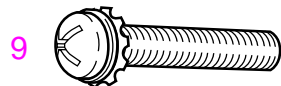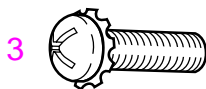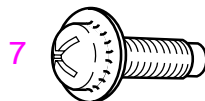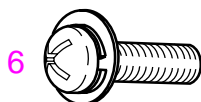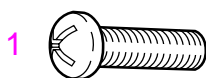
| 6 mm | 8 mm | 10 mm | 12 mm | M 3 | M 4 |

| 14 mm | 16 mm | 25 mm |
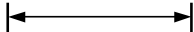
Part number	Product description	
0515-2672	M3 x 8 mm	Pan-head phillips
FA9-1449-000CN	M3 x 6 mm	Washer-head phillips
XA9-0192-000CN	M4 x 6 mm	Star-washer phillips
XA9-0267-000CN	M3 x 6 mm	Washer-head phillips
XA9-0302-000CN	M3 x 8 mm	Self-tapping phillips
XA9-0382-000CN	M3 x 12 mm	Self-tapping phillips
XA9-0434-000CN	M3 x 4 mm	Self-tapping phillips
XA9-0476-000CN	M3 x 8 mm	Self-tapping phillips
XA9-0497-000CN	M3 x 8 mm	Trus-head phillips
XA9-0591-000CN	M3 x 8 mm	Trus-head phillips
XA9-0605-000CN	M4 x 8 mm	Trus-head phillips
XA9-0606-000CN	M4 x 10 mm	Trus-head phillips
XA9-0614-000CN	M3 x 8 mm	Trus-head phillips
XA9-0653-000CN	M3 x 6 mm	Star-washer phillips
XA9-0686-000CN	M3 x 6 mm	Hexhead screw
XA9-0724-000CN	M3 x 8 mm	Hexhead screw
XA9-0779-000CN	M3 x 6 mm	Washer-head phillips
XA9-0824-000CN	M3 x 10 mm	Hexhead screw
XA9-0828-000CN	M3 x 6 mm	Star-washer phillips
XA9-0855-000CN	M3 x 8 mm	Truss-head phillips
XA9-0870-000CN	M4 x 10 mm	Self-tapping phillips
XA9-0890-000CN	M4 x 6 mm	Washer-head phillips
XA9-0904-000CN	M3 x 6 mm	Trus-head phillips
XA9-0924-000CN	M3 x 8 mm	Washer-head phillips
XA9-0951-000CN	M3 x 8 mm	Washer-head phillips
XA9-1016-000CN	M3 x 6 mm	Trus-head phillips
XA9-1206-000CN	M4 x 12 mm	Washer-head phillips
XA9-1223-000CN	M3 x 6 mm	Self-tapping phillips
XA9-1226-000CN	M3 x 8 mm	Washer-head phillips
XA9-1273-000CN	M4 x 12 mm	Self-tapping phillips
XB1-2300-605CN	M3 x 6 mm	Truss-head phillips
XB2-7300-407CN	M3 x 7 mm	Star-washer phillips
XB2-7300-607CN	M3 x 6 mm	Washer-head phillips
XB2-7400-607CN	M4 x 6 mm	Washer-head phillips
XB2-8301-007CN	M3 x 10 mm	Washer-head phillips
XB4-7400-007CN	M4 x 20 mm	Self-tapping phillips
XB4-7400-607CN	M4 x 6 mm	Washer-head phillips
XB4-7400-609CN	M4 x 6 mm	Self-tapping phillips
XB4-7400-805CN	M4 x 8 mm	Self-tapping phillips
XB4-7400-809CN	M4 x 8 mm	Self-tapping phillips

XB4-7401-000CN	M4 x 10 mm	Self-tapping phillips
XB4-7401-007CN	M4 x 10 mm	Self-tapping phillips
XB4-7401-207CN	M4 x 12 mm	Self-tapping phillips
XB4-7401-209CN	M4 x 12 mm	Self-tapping phillips
XB6-7300-407CN	M3 x 4 mm	Self-tapping phillips
XB6-7300-807CN	M3 x 8 mm	Self-tapping phillips
XB6-7400-809CN	M3 x 8 mm	Self-tapping phillips

8

Parts for the HP LaserJet 1200

Major assemblies
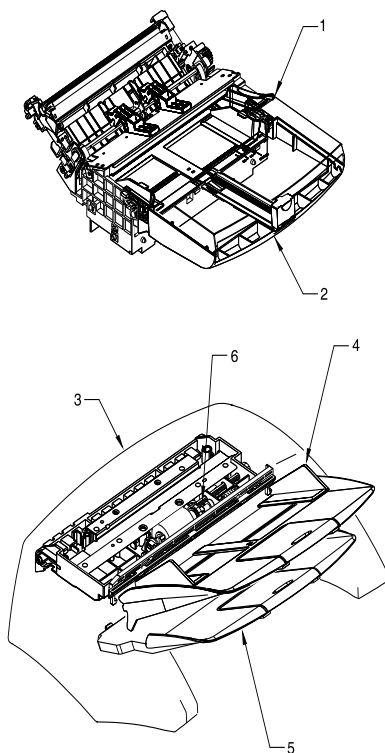
Figure 6   Major assembly locations (1200 series, 1 of 3)

HP LaserJet 1200 assemblies

Ref.	Part number	Description
1	RG0-1013-000CN	Printer-pickup tray assembly
2	RG0-1014-000CN	Paper-pickup cover assembly
3	R37-5020-000CN	Optional copier/scanner
4	RG0-1069-000CN	Copier/scanner pickup-tray assembly
5	RG0-1070-000CN	Face-down tray assembly
6	RY7-5055-000CN	Copier/scanner separation pad

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Major assemblies (continued)
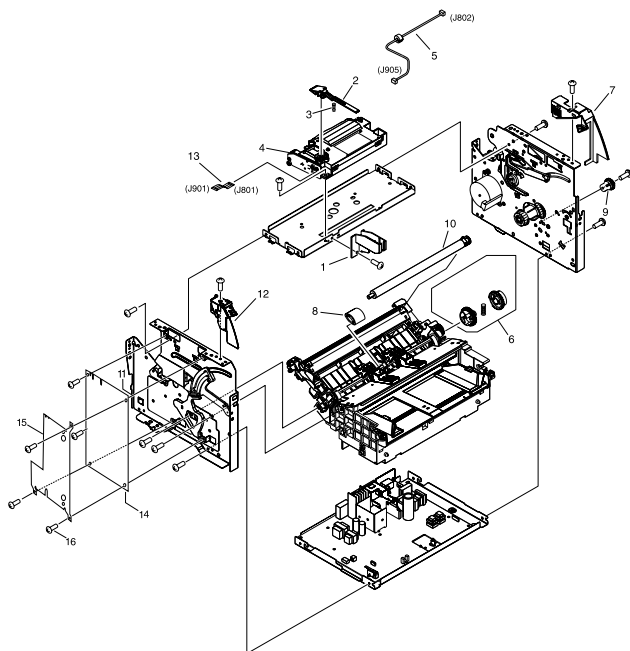
Figure 7   Major assembly locations (1200 series, 2 of 3)

HP LaserJet 1200 assemblies (continued)

Ref.	Part number	Description
1	RA0-1181-000CN	Shutter guide
2	RA0-1182-000CN	Shutter lever
3	RA0-1169-000CN	Compression spring
4	RG9-1486-000CN	Laser/scanner assembly
5	RG0-1074-000CN	Cable, laser/scanner
6	RG0-1020-000CN	Pickup-gear assembly
7	RA0-1184-000CN	Cover, right support
8	RF0-1008-000CN	Pickup roller
9	RA0-1172-000CN	Gear, 17T
10	RG9-1483-000CN	Transfer roller
11	RG0-1002-000CN	Left-plate assembly
12	RG0-1024-000CN	Control-panel assembly
13	RH2-5440-000CN	Cable, laser/scanner flat flexible
14	C7857-60001	Formatter
15	C7044-00001	Formatter shield
16	0515-2672	Formatter screws

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Major assemblies (continued)
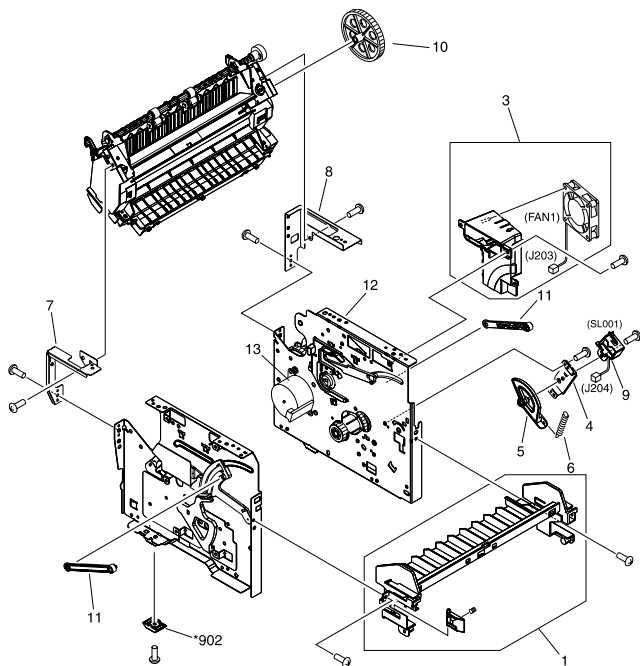
Figure 8   Major assembly locations (1200 series, 3 of 3)

HP LaserJet 1200 assemblies (continued)

Ref.	Part number	Description
1	RG0-1022-000CN	Front-guide assembly
3	RG0-1030-000CN	Fan assembly
4	RA0-1173-000CN	Lever holder
5	RA0-1174-000CN	Lever
6	RA0-1175-000CN	Tension spring
7	RA0-1185-000CN	Fuser plate, left
8	RA0-1186-000CN	Fuser plate, right
9	RH7-5284-000CN	Solenoid, DC24V
10	RA0-1176-000CN	Gear, 69T
11	RA0-1023-000CN	Connecting Link
12	RG0-1001-000CN	Right-plate assembly
13	RH7-1473-000CN	Motor
902	RA0-1197-000CN	Foot, rubber (plate assemblies)
N/A	RG9-1493-000CN	Fuser assembly, 110 V
N/A	RG9-1493-000CN	Fuser assembly, 220 V

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Parts for the HP LaserJet 2200

Major assemblies

Figure 9   Major assembly locations (2200 series, 1 of 5)

HP LaserJet 2200 assemblies

Ref.	Part number	Description
1	RB2-6246-000CN	Plate, grounding
2	RB2-6255-000CN	Mount, fan
3	RH7-1463-000CN	Fan
4	RB2-6261-000CN	Eliminator, static charge
5	RB2-2837-000CN	Spring, torsion
6	RB2-2836-000CN	Lever, sensor
7	RG5-5598-000CN	Paper feeder cable
8	RG5-5591-000CN	Laser/scanner assembly
8A	RH2-5427-000CN	Flat cable, laser
501	XB2-7300-607CN	Screw, w/washer, M3 by 6
502	XB4-7401-007CN	Screw, TP, pan head, M4 by 10
503	XB6-7300-407CN	Screw, M3 by 4
504	XA9-1273-000CN	Screw, TP, M4 by 12

8

Major assemblies (continued)
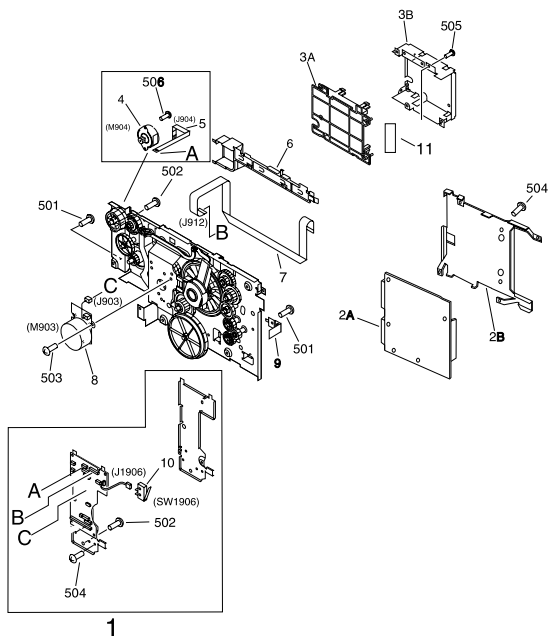
Figure 10   Major assembly locations (2200 series, 2 of 5)

HP LaserJet 2200 assemblies (continued)

Ref.	Part number	Description
1	RG5-5566-000CN	Engine controller assembly
2A	C4209-60001	Formatter PCB
2B	C7058-00001	Formatter RFI shield
3A	RB2-2944-000CN	Guide, EIO
3B	RB2-2945-000CN	Plate, mount, EIO
4	RH7-1461-000CN	Reverse motor, 23 V DC
5	RH2-5425-000CN	Flat cable, reverse motor
6	RB2-6247-000CN	Guide, flat cable
7	RH2-5423-000CN	Flat cable, I/F
8	RH7-1458-000CN	Motor, DC
9	RB2-6252-000CN	Plate, protection
10	RH7-6051-000CN	Microswitch
11	C7058-00010	RFI clip
501	XB2-7300-607CN	Screw, w/washer, M3 by 6
502	XB4-7401-007CN	Screw, TP, pan head, M4 by 10
503	XB6-7300-407CN	Screw, M3 by 4
504	XA9-1223-000CN	Screw, TP, M3 by 6

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Major assemblies (continued)
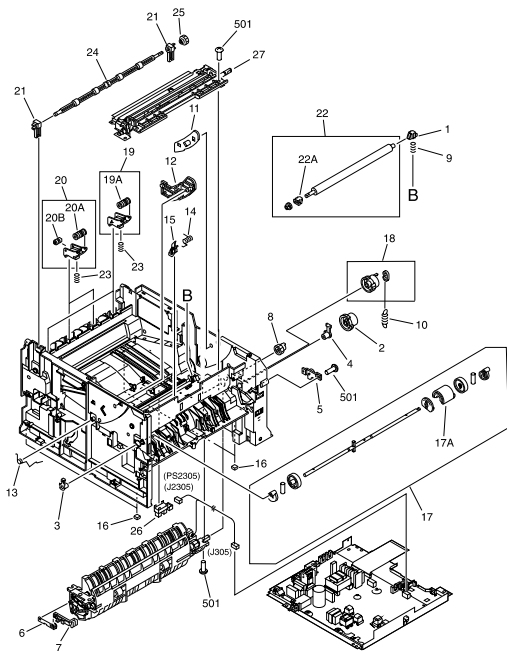
Figure 11   Major assembly locations (2200 series, 3 of 5)

HP LaserJet 2200 assemblies (continued)

Ref.	Part number	Description
1	RB2-2926-020CN	Bushing, transfer, right
2	RB2-3040-000CN	Gear, 26T
3	RB2-3043-000CN	Bushing, left
4	RB2-3044-000CN	Bushing, right
5	RB2-6248-000CN	Damper
6	RB2-6250-000CN	Rod, jam clearing
7	RB2-6251-000CN	Lever, jam clearing
8	RS6-0445-000CN	Gear, 14T
9	RS6-2022-000CN	Spring, compression
10	RS6-2025-000CN	Spring, tension
11	RB2-2830-020CN	Guide, cartridge, right
12	RB2-2831-020CN	Guide, cartridge, left
13	RB2-2832-000CN	Spring, compression
14	RB2-2843-000CN	Spring, torsion
15	RB2-6264-000CN	Arm, sensor
16	RB2-6297-000CN	Foot, rubber
17	RG5-4128-000CN	Tray 1 pick-up assembly
18	RG5-4156-000CN	Cassette pick-up gear assembly
19	RG5-5541-000CN	FD delivery-roller assembly
20	RG5-5542-000CN	FD delivery-roller assembly
21	RB2-2850-000CN	Bushing
22	RG5-5581-000CN	Transfer-roller assembly
24	RF5-3275-000CN	Roller, face-down, upper
25	RS6-0441-000CN	Gear, 15T
26	WG8-5382-000CN	Photo interrupter TLP1242
27	RG5-5556-000CN	Registration assembly

8

Major assemblies (continued)
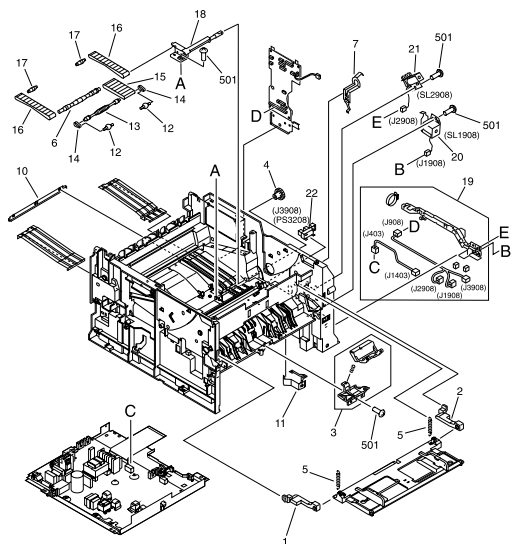
Figure 12   Major assembly locations (2200 series, 4 of 5)

HP LaserJet 2200 assemblies (continued)

Ref.	Part number	Description
1	RB2-3041-020CN	Hinge, left
2	RB2-3042-020CN	Hinge, right
3	RF5-3272-000CN	Pad, separation
4	RS6-0464-000CN	Gear, 20T
5	RS6-2030-000CN	Spring, tension
6	RB2-3073-000CN	Shaft, drive, 1
7	RB2-3075-000CN	Spring, leaf, grounding
10	RB2-3080-000CN	Plate, grounding
11	RB2-6266-000CN	Spring, leaf
12	RB2-6268-000CN	Pulley
13	RB2-6269-000CN	Shaft, drive, front
14	RB2-6270-000CN	Belt, paper-feed, 3
15	RB2-6272-000CN	Belt, paper-feed, 1
16	RB2-6273-000CN	Belt, paper-feed, 2
17	RB2-6274-000CN	Shaft, drive, rear
18	RG5-5577-000CN	Gear assembly
19	RG5-5568-000CN	Cable-guide assembly
20	RH7-5270-000CN	Solenoid
21	RH7-5273-000CN	Solenoid
22	WG8-5382-000CN	Photo interrupter TLP1242
501	XB4-7401-007CN	Screw, TP, pan head M4 by 10

8

Major assemblies (continued)
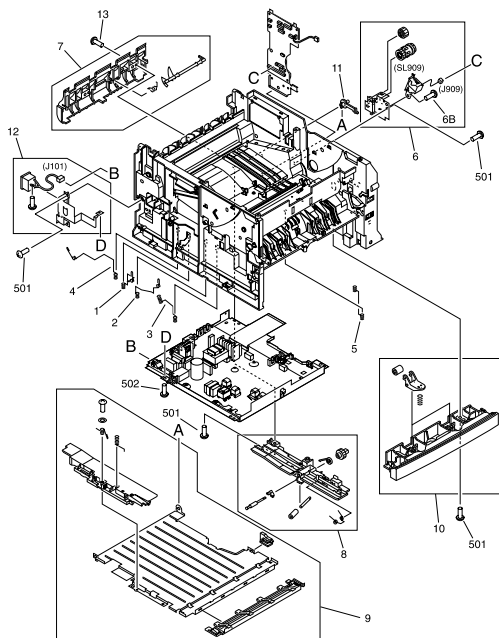
Figure 13   Major assembly locations (2200 series, 5 of 5)

HP LaserJet 2200 assemblies (continued)

Ref.	Part number	Description
1	RB2-6262-000CN	Spring, compression
2	RB2-6263-000CN	Spring, compression
3	RB2-6265-000CN	Spring, compression
4	RB2-6267-000CN	Spring, compression
5	RB2-6271-000CN	Spring, compression
6	RG5-5552-000CN	Duplex solenoid assembly
6B	XA9-0686-000CN	Screw, RS, M3 by 6
7	RG5-5548-000CN	Reverse-guide assembly
8	RG5-5553-000CN	Position-guide assembly
9	RG5-5554-000CN	Duplex-feed guide assembly
10	RG5-5555-000CN	Feed-roller assembly
11	RB2-6249-000CN	Hinge, feed guide
12	RG5-5565-000CN	Inlet cable unit
13	XA9-1206-000CN	Screw, w/washer, M4 by 12
501	XB4-7401-007CN	Screw, TP, pan head, M4 by 10
502	XB2-7300-607CN	Screw, w/washer, M3 by 6

8

Parts for the HP LaserJet 3100/3150

Major assemblies
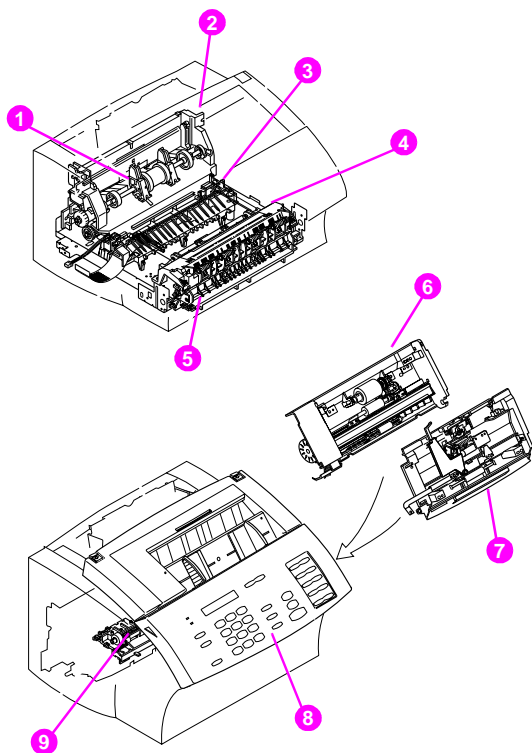
Figure 14   Major assembly locations (3100 and 3150 series)

HP LaserJet 3100 and 3150 assemblies

Ref.	Part number	Description
1	RG5-3486-040CN	Pickup-roller assembly
2	RG5-3484-070CN	Paper-pickup assembly
3	RG5-3452-000CN	Transfer assembly
4	RG5-3474-020CN	Delivery assembly
5	RG5-3475-040CN	Separation-guide assembly
6	RG5-4771-000CN	Document-scanner assembly
7	RG5-4221-000CN RG5-4768-000CN	Upper-guide assembly (LJ 3100) Upper-guide assembly (LJ 3150)
8	RG5-4241-000CN RG5-4769-000CN	Control-panel assembly (LJ 3100) Control-panel assembly (LJ 3150)
9	RG5-3485-030CN	Feed assembly

8
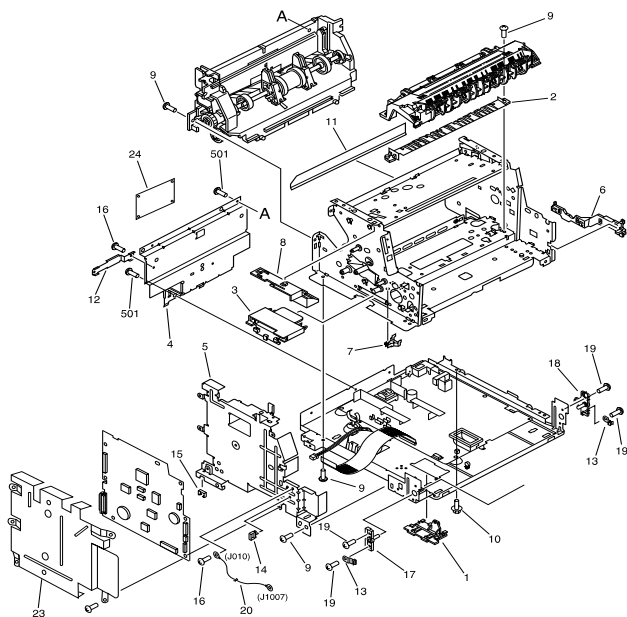
Figure 15   Major assembly locations (3100 and 3150 series)

HP LaserJet 3100 and 3150 assemblies (continued)

Ref.	Part number	Description
	RG5-3484-070CN	Paper pickup assembly
	RG5-3486-040CN	Pickup roller assembly
	RG5-3474-020CN	Delivery assembly
1	RB2-3345-000CN	Cap
2	RB1-7247-000CN	Paper guide
3	RB2-3350-000CN	Cable guide, formatter
4	RF5-2664-000CN	Reinforcement plate
5	RB2-3364-000CN	Metal plate
6	RB1-7130-020CN	Cable guide
7	RB1-7234-000CN	Cap
8	RB2-3366-000CN	Cable guide holder, formatter
9	XA9-0724-000CN	Screw M3X8 (11)
10	XA9-0855-000CN	Screw, RS, with washer, M3X8
11	RB1-7176-000CN	Guide sheet
12	RB2-4118-000CN	Grounding plate
13	RB2-3467-000CN	Grounding plate (2)
14	WT2-5178-000CN	Cable guide, control panel
15	WT2-5300-000CN	Cable guide, frame
16	XA9-0779-000CN	Screw
17	RB2-3465-000CN	Left hinge holder
18	RB2-3466-000CN	Right hinge holder
19	XA9-0434-000CN	Screw, TP, M3X4 (4)
20	RG5-4237-000CN	Cable, grounding, document scanner motor
21	XA9-0267-000CN	Screw
22	C3949-60001	Formatter—LJ 3100
	C3949-69001	Formatter—LJ 3100 (exchange)
	C3949-60002	Formatter—LJ 3150
	C3949-69002	Formatter—LJ 3150 (exchange)

8

Ref.	Part number	Description
23	C3948-00002	RFI shield
24	C3948-60001	LIU board (U.S.)
24	C3948-60002	LIU board (worldwide)
25	0515-2672	Screw, M3X6 (9)
501	XB4-7400-807CN	Screw, tapping, truss head, M4X8 (3)

8

Major assemblies (continued)
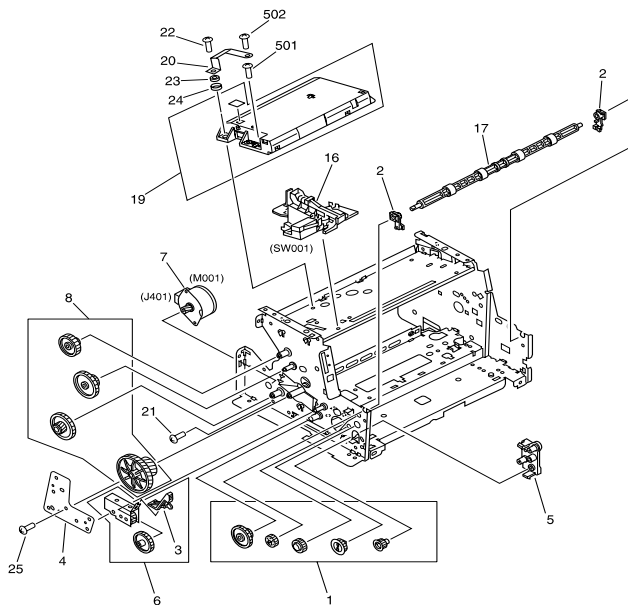
Figure 16   Major assembly locations (3100 and 3150 series)

HP LaserJet 3100 and 3150 assemblies (continued)

Ref.	Part number	Description
1	RY7-5005-000CN	Gear kit #1
2	RB1-7288-020CN	Bushing (2)
3	RB1-7105-000CN	Pressure release lever
4	RB2-1632-000CN	Gear support plate
5	RB1-7107-000CN	Gear holder
6	RY7-5007-000CN	Fuser release kit
7	RH7-1320-000CN	Motor, DC 12V
8	RY7-5036-000CN	Gear kit #2
16	RG5-3453-000CN	Switch lever assembly
17	RF5-2367-000CN	Exit roller
Note: The Following two parts (ref. 19 and 20) must **both** be replaced if replacing either one.		
19	RG5-3497-050CN	Laser/scanner assembly
20	RB1-7385-020CN	Grounding spring
21	XA9-0267-000CN	Screw, TP, M3X6 (2)
22	XA9-0382-000CN	Screw, TP, M3X12
23	WE8-5192-000CN	Ferrite ring core
24	RB9-0227-000CN	Spacer
501	XB6-7300-807CN	Screw, TP, M3X8 (5)
502	XB4-7300-809CN	Screw, tapping, truss head, M3X8

8

Major assemblies (continued)
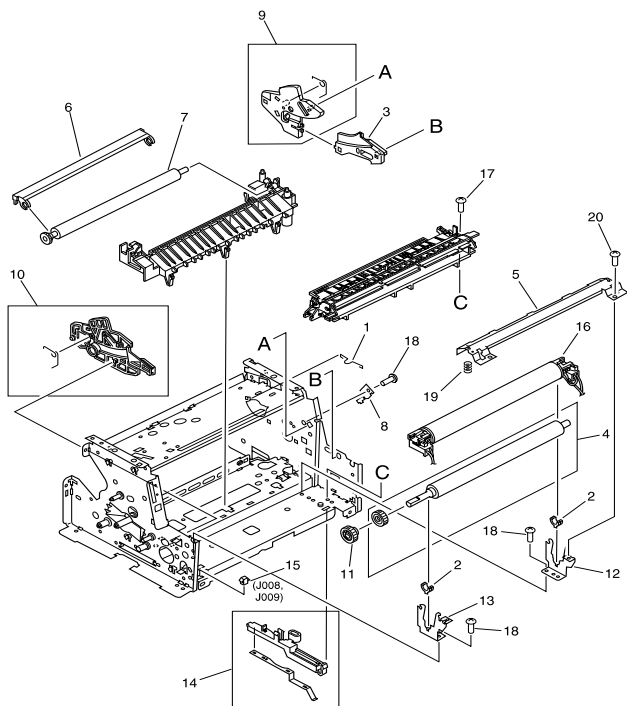
Figure 17   Major assembly locations (3100 and 3150 series)

HP LaserJet 3100 and 3150 assemblies

Ref.	Part number	Description
	RG5-3475-040CN	Separation guide assembly
1	RB1-7223-000CN	Grounding clip
2	RB1-7246-000CN	Bushing (2)
3	RB1-7341-030CN	Right cartridge guide #1
4	RF5-2364-000CN	Pressure roller
5	RF5-1517-020CN	Pressure plate
6	RF5-2358-000CN	Transfer guide
7	RF5-1534-000CN	Transfer roller
8	RB1-7129-000CN	Grounding metal
9	RF5-1515-020CN	Right cartridge guide #2
10	RF5-1514-020CN	Left cartridge guide
11	RS5-0796-000CN	Pressure roller gear (27T)
12	RB1-7256-000CN	Right side plate
13	RB1-7255-000CN	Left side plate
14	RF5-1533-000CN	Pressure roller ground guide
15	VS1-5057-002CN	Fuser connector (2P)
16	RG5-4678-000CN	Fixing assembly, 110 V
16	RG5-4681-000CN	Fixing assembly, 220 V
17	XA9-0724-000CN	Screw, M3X8
18	XA9-0686-000CN	Screw, M3X6
19	RS5-2508-000CN	Spring, compression
20	XA9-0824-000CN	Screw, RS, M3X10
21	RG5-3452-000CN	Transfer guide assembly
	CK-8006-000CN	Pressure roller grease

8

Major assemblies (continued)
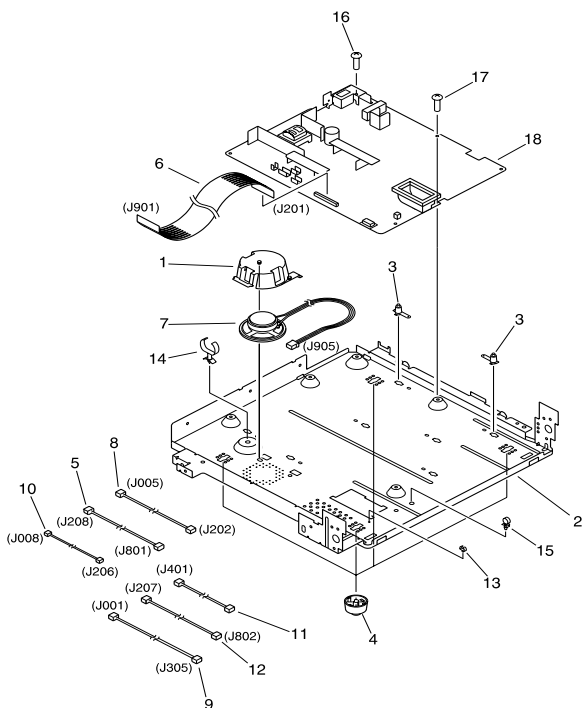
Figure 18   Major assembly locations (3100 and 3150 series)

HP LaserJet 3100 and 3150 assemblies

Ref.	Part number	Description
1	RB2-3346-000CN	Speaker mount
2	RB2-3342-000CN	Bottom plate
3	RB2-3347-000CN	Spacer, PCB (7)
4	RF5-2663-000CN	Foot (4)
5	RG5-2035-000CN	Cable, laser
6	RH2-5346-000CN	Cable, formatter
7	RH6-3845-000CN	Speaker
8	RG5-2029-000CN	Cable, paper pickup
9	RG5-3662-000CN	Cable, door switch
10	RG5-2032-000CN	Cable, thermistor
11	RG5-2033-000CN	Cable, motor
12	RG5-3661-000CN	Cable, scanner
13	WT2-0276-000CN	Clamp, wire
14	WT2-0367-000CN	Clamp, cable
15	WT2-5178-000CN	Clamp, cable
16	XA9-0828-000CN	Screw, with star washer, M3X4
17	XA9-0890-000CN	Screw, with washer, M3X6 (4)
18	RG5-4690-000CN	ECU, 110 V
18	RG5-4691-070CN	ECU, 220 V
	C3948-60102	Cable, LIU

8

Parts for the HP LaserJet 3200

Major assemblies
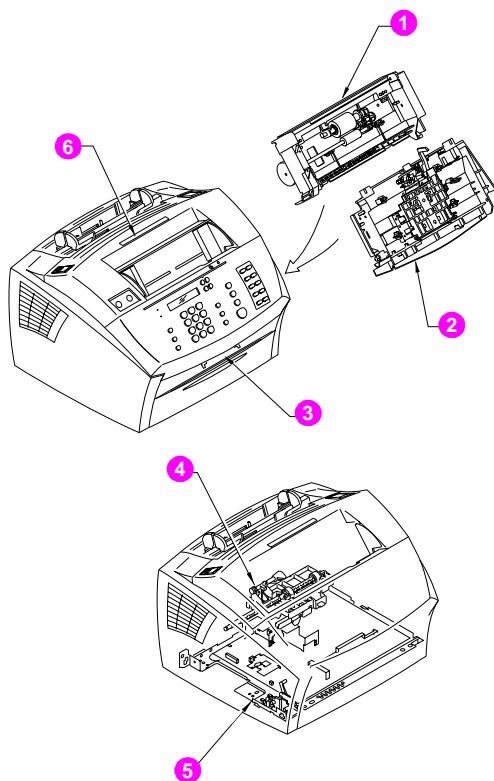
Figure 19   Major assembly locations (3200 series)

HP LaserJet 3200 assemblies

Ref.	Part number	Description
1	RG5-5399-000CN	Document feeder
2	RG5-5402-000CN	Upper-guide assembly
3	RG5-5406-000CN	Control-panel assembly
4	RG9-1480-000CN	Feed assembly
5	RG5-4599-000CN	Door-sensor assembly
6	RG5-5411-000CN	Printer-door assembly

8

Major assemblies (continued)
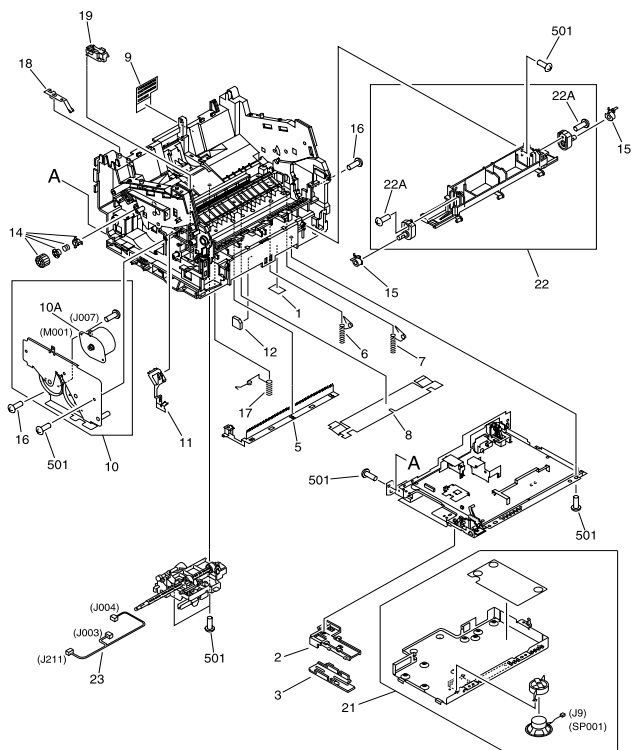
Figure 20   Major assembly locations (3200 series)

HP LaserJet 3200 assemblies (continued)

Ref.	Part number	Description
1	RB2-4324-000CN	Sheet
2	RB2-4017-000CN	Cable holder
3	RB2-4030-000CN	Scanner cable cover
5	RB2-3951-000CN	Static charge eliminator
6	RB2-3952-000CN	Spring, torsion
7	RB2-3953-000CN	Spring, torsion
8	RB2-4054-000CN	Sheet, transfer
9	RB2-4055-000CN	Safety cover
10	RG5-4586-000CN	Drive assembly
10A	RH7-1404-000CN	Motor, stepping
11	RB2-3959-000CN	Spring, leaf, left
12	RB2-4329-000CN	Seal, frame, 2
14	RY7-5051-000CN	Clutch kit
15	RB2-5497-000CN	Hinge clip
16	XA9-0779-000CN	Screw, w/washer, M3X6
17	RB2-4042-000CN	Spring, torsion
18	RB9-0538-000CN	Plate, grounding
19	RF5-2880-000CN	Holder, fixing
21	RG5-5393-000CN	Formatter case assembly
22	RG5-5392-000CN	Hinge support assembly
22A	XB4-7401-007CN	Screw, tapping, pan head, M4X10
23	RG5-4617-000CN	Sensor cable
24	C7052-60004	Line interface unit (LIU)
	C4261-60001	Formatter (not pictured)
501	XB4-7401-007CN	Screw, tapping, pan head, M4X10

8

Major assemblies (continued)
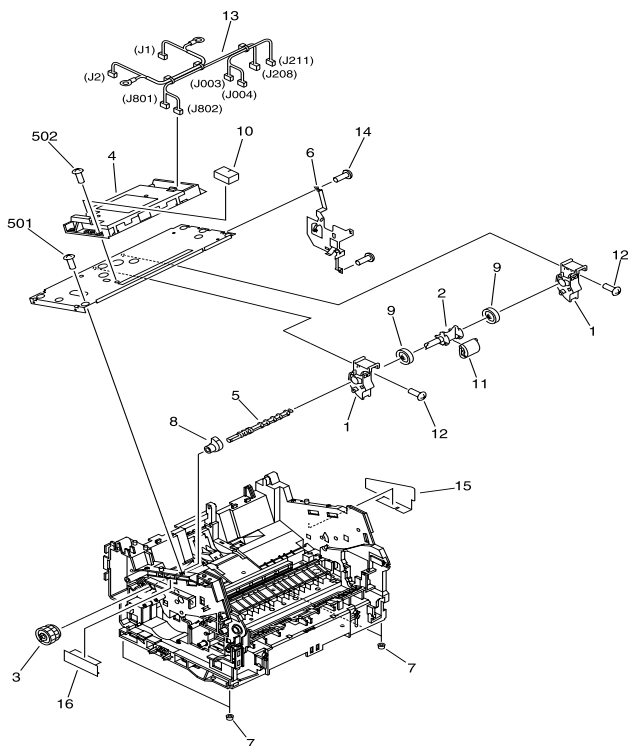
Figure 21   Major assembly locations (3200 series)

HP LaserJet 3200 assemblies (continued)

Ref.	Part number	Description
1	RG5-4584-000CN	Roller holder assembly
2	RB2-3930-000CN	Shaft, pickup roller
3	RG5-4585-000CN	Gear assembly
4	RG5-5421-000CN	Laser/scanner assembly
5	RB2-3943-000CN	Shaft
6	RB2-3944-000CN	Spring, leaf
7	RB2-3945-000CN	Foot
8	RB2-3949-000CN	Cam
9	RB2-3931-000CN	Roller
10	RB2-3904-000CN	Cover, foamy
11	RB2-4026-000CN	Roller, pickup
12	XA9-0267-000CN	Screw, TP, M3X6
13	RG5-5415-000CN	Scanner cable
14	XA9-0653-000CN	Screw, w/star washer, M3X6
15	RB2-5501-000CN	Sheet, light-blocking
16	RB2-5500-000CN	Sheet, light-blocking
501	XB4-7401-007CN	Screw
502	XB6-7300-807CN	Screw

8

Major assemblies (continued)
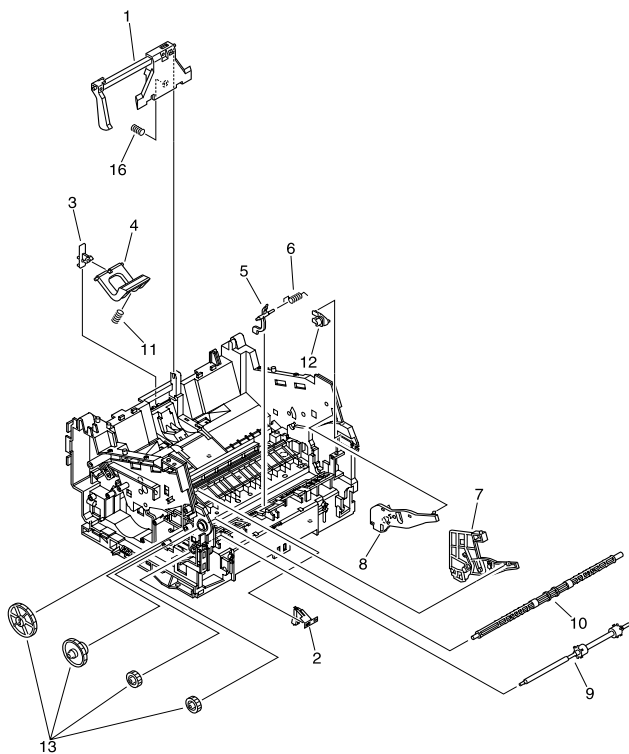
Figure 22   Major assembly locations (3200 series)

HP LaserJet 3200 assemblies (continued)

Ref.	Part number	Description
1	RG5-4582-000CN	Paper guide plate assembly
2	RB2-4219-000CN	Plate, grounding
3	RB2-3947-000CN	Holder, pad
4	RF5-2832-000CN	Arm, pad
5	RB2-3960-000CN	Flag, sensor
6	RB2-3961-000CN	Spring, torsion
7	RF5-2818-000CN	Guide, cartridge, left
8	RF5-2819-000CN	Guide, cartridge, right
9	RF5-2822-000CN	Roller, face-up
10	RF5-2830-000CN	Roller, face-down
11	RS5-2502-000CN	Spring, compression
12	RB2-4016-000CN	Stop, slide
13	RY7-5049-000CN	Gear kit
16	RS6-2122-000CN	Spring, compression

8

Major assemblies (continued)
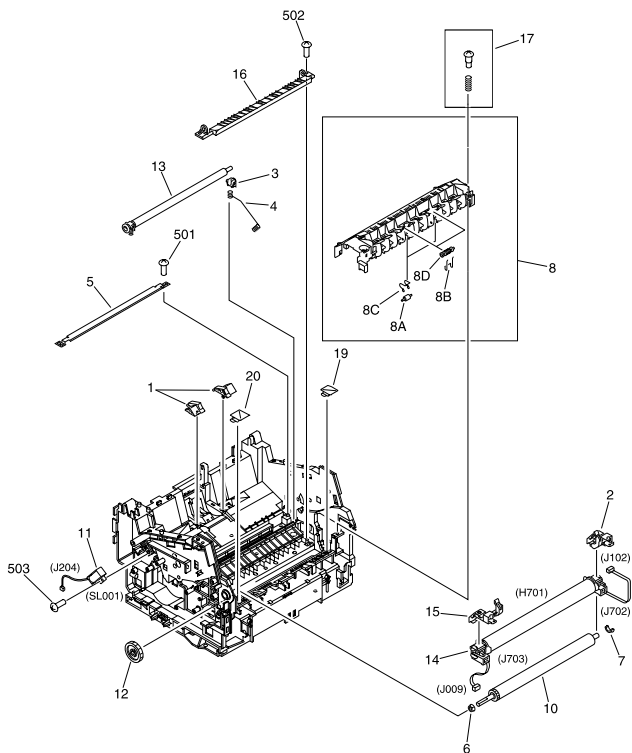
Figure 23   Major assembly locations (3200 series)

HP LaserJet 3200 assemblies (continued)

Ref.	Part number	Description
1	RY7-5050-000CN	Sub pad kit (includes left and right)
2	RG5-5388-000CN	Metal clip, fusing element (right)
3	RB2-3939-000CN	Bushing, right
4	RB2-3940-000CN	Spring, compression
5	RB2-3950-000CN	Guide, transfer
6	RB2-3956-000CN	Bushing, left
7	RB2-3957-000CN	Bushing, right
8	RG5-4593-000CN	Delivery assembly
8A	RB2-4222-000CN	Roller, face up
8B	RB1-7286-000CN	Spring, wire
8C	RB1-7287-000CN	Spring, wire
8D	RB2-4223-000CN	Roller, face down
10	RF5-2823-000CN	Roller, pressure
11	RH7-5227-000CN	Solenoid
12	Part of gear kit, part number RY7-5049-000CN on page 225.	
13	RG5-4657-000CN	Transfer assembly
14	RG5-4589-000CN	Fusing element (110 V)
14	RG5-4590-000CN	Fusing element (220 V)
15	RG5-5387-000CN	Metal clip, fusing element (left)
16	RB2-3958-000CN	Guide, fusing element
17	RY7-5060-000CN	Screw kit, delivery assembly
19	RB2-4432-000CN	Sub guide, right
20	RB2-4431-000CN	Sub guide, left
501	XB4-7400-805CN	Screw, tapping, truss head, M4x
502	XB4-7401-209CN	Screw, tapping, truss head, M4x12
503	XB4-7401-007CN	Screw, tapping, pan head, M4X10

8

Major assemblies (continued)
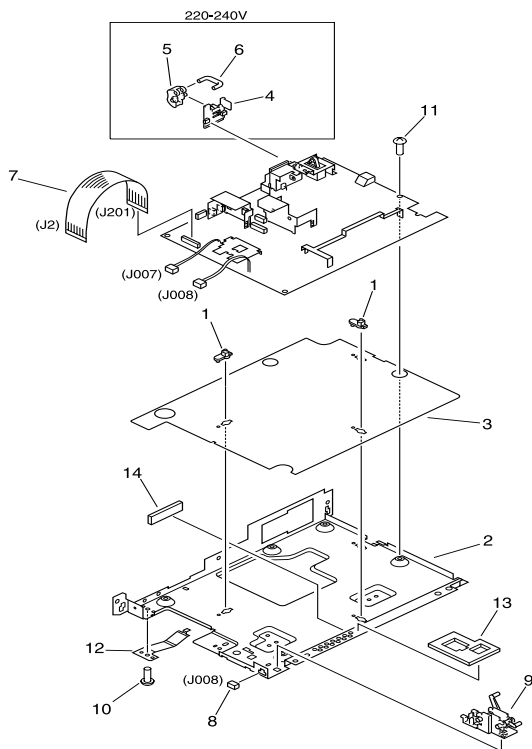
Figure 24   Major assembly locations (3200 series)

HP LaserJet 3200 assemblies (continued)

Ref.	Part number	Description
1	RB1-7303-000CN	Spacer
2	RB2-3984-000CN	ECU pan
3	RB2-3985-000CN	Sheet, insulating
4	RB2-3986-000CN	Holder, power switch lever
5	RB2-3987-000CN	Lever, power switch
6	RB2-3988-000CN	Rod, switch
7	RH2-5381-000CN	Cable, flat
8	VS1-5057-002CN	Connector, 2P
9	RG5-4599-000CN	Door sensor assembly
10	XA9-0653-000CN	Screw, w/star washer, M3X6
11	XA9-0951-000CN	Screw, w/washer, M3X8
12	RB2-4049-000CN	Plate, grounding
13	RB2-4327-000CN	Seal, sensor, 1
14	RB2-4328-000CN	Seal, sensor, 2
15	RG5-5395-000CN	ECU (110 v)
15	RG5-5397-000CN	ECU (220 v)

8

Parts for the HP LaserJet 4100

Major assemblies
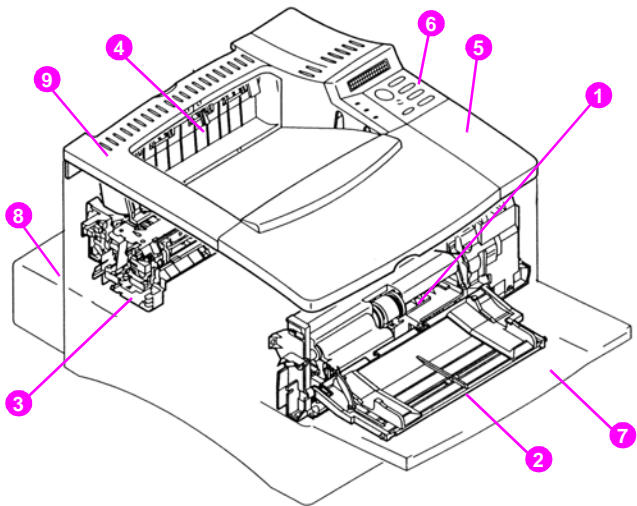
Figure 25   Major assembly locations (4100 series, 1 of 2)

HP LaserJet 4100 assemblies

Ref.	Part number	Description
1	RG5-5084-000CN	Tray 1 pickup assembly
2	RG5-2656-080CN	Tray 1 assembly
3	C8049-69007 (110 V) C8049-69008 (220 V)	Fuser assembly
4	RG5-5094-050CN	Paper-delivery assembly
5	RG5-2663-090CN	Top-cover assembly
6	RG5-5372-040CN	Control panel assembly
7	C8049-67903	Tray 1 door assembly
8	RB2-4827-000CN	Cover, tray 2 rear
9	RG5-5097-000CN	Tray assembly, rear
	RB1-8974-000CN	Clutch, separation roller
	RB1-8945-000CN	Coupler, separation roller
	C4169-69001	Formatter
	C8049-69005	Laser/scanner assembly
	RH7-1440-000CN	Motor, main drive
	RF5-3114-000CN	Roller, feed/separation
	RB1-8957-000CN	Roller, pickup
	RG5-3718-000CN	Roller, tray 1 pickup
	RG5-5295-000CN	Transfer roller

8

Major assemblies (continued)
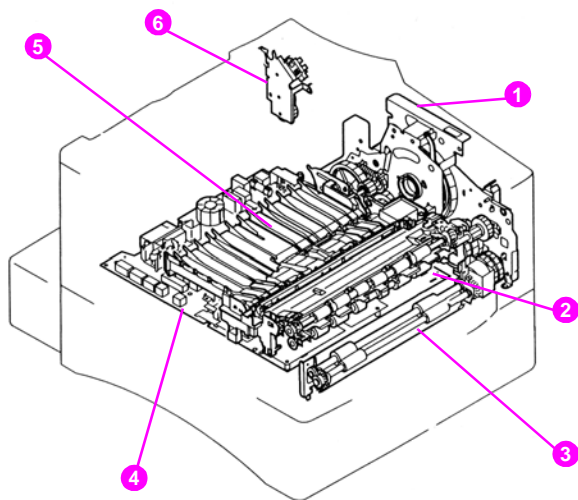
Figure 26   Major assembly locations (4100 series, 2 of 2)

HP LaserJet 4100 assemblies (continued)

Ref.	Part number	Description
1	RG5-5087-000CN	Printer-drive assembly
2	RG5-5085-000CN	Registration assembly
3	RG5-5086-000CN	Paper-feed assembly
4	C8049-69003 (110 V) C8049-69004 (220 V)	Engine controller-board assembly
5	RG5-5083-000CN	Paper-guide assembly
6	RG5-5095-000CN	Delivery-drive assembly

8

9 Image quality

Chapter contents

Cleaning page

For print-quality defects, try generating a cleaning page from the printer control panel (LJ 1200, 2200, 3200, 4100) or from the JetSuite Pro software (LJ 3100 and 3150).

For the cleaning page to work properly, make sure to print the page on a transparency or copier-grade paper (not bond or rough paper), depending on the printer model.

LJ 1200 series

Note
This process requires use of a transparency to remove dust and toner from the print paper path. If transparency film is unavailable, you can use copier-grade paper. If you must use paper, perform the procedure two or three times to ensure proper cleaning.

1 Load a transparency in the priority input tray.

2 Make sure that the printer is in the Ready state.

3 Press and hold the **Go** button for 10 seconds. The transparency feeds through the printer slowly. Discard the transparency.

Note
After you press and hold the **Go** button, the three printer lights blink until the cleaning process is complete.

9

LJ 2200 series

Note

This process requires use of a transparency to remove dust and toner from the print paper path. If transparency film is unavailable, you can use copier-grade paper.

1 Make sure the printer is turned on and in the Ready state. Load a transparency in tray 1.

2 Press **Go** and hold for 10 seconds.

3 Release **Go**, the lights will cycle from front to back until the cleaning process has completed.

Note

During the engine cleaning process, the printer pulls the transparency into the printer and then stops. This is not a jam. The transparency will be slowly stepped through the printer to complete the engine cleaning.

4 Discard the blank page produced from the engine cleaning process.

LJ 3100 and 3150 series

1 Place a stack of plain letter- or A4-sized paper into the paper-input bin. (Do not use thick or rough paper.)

2 For Microsoft Windows 95 or Windows 98, open Windows Explorer.
OR
For Windows 3.1*x*, open File Manager.

3 Open the JetSuite folder (if the JetSuite Pro software was installed to the default location, the path is "C:\JetSuite").

Note

If you do not have access to JetSuite Pro software, a cleaning page is available from the HP web addresses:
http://www.hp.com/support/lj3100
OR
http://www.hp.com/support/lj3150

4 Double-click **CleanPg.jsd** to open the cleaning page.

5 When the document opens in the JetSuite Pro software, click **Print** in the link icon bar at the bottom of the dialog.

6 After the cleaning page has printed, remove the stack of paper from the paper-input bin.

7 Place the cleaning page into the paper-input bin, top first, face down.

8 Print a different file.

9 Inspect the page. If there are no shiny, black spots on the page's black strip, the print path is clean. Discard the page, and the procedure has been completed.

10 If there are shiny, black spots on the black strip of the page, toner has been cleaned from the print path. Discard the page. Repeat steps 1 through 9 until there are no shiny, black spots on the page.

9

LJ 3200 series

Note

This process requires copier-grade paper to remove dust and toner from the print paper path. Do not use bond or rough paper.

1 Place the copier-grade paper into the document-feeder tray.

2 Ensure that the product is in the Ready state, and then press **Enter/Menu**.

3 Use **<** or **>** to select SERVICE, and then press **Enter/Menu**.

4 Use **<** or **>** to select CLEANING MODE, and then press **Enter/ Menu**.

5 Press **Enter/Menu** to start the cleaning mode.

The device displays the message IN CLEANING MODE until this process is completed.

LJ 4100 series

This process requires copier-grade paper to remove dust and toner from the print paper path. Do not use bond or rough paper.

Creating a cleaning page

From the printer control panel, do the following:

1 Press **Menu** until PRINT QUALITY MENU appears.

2 Press **Item** until CREATE CLEANING PAGE appears.

3 Press **Select** to create the cleaning page.

4 Follow the instructions on the cleaning page to complete the cleaning process.

You might need to create and process a cleaning page more than once. When toner has been cleaned from the fuser assembly, shiny black spots will appear on the page's black strip. If white spots appear on the black strip, create another cleaning page.

9

To ensure good print quality with certain types of media, use the cleaning page every time the toner cartridge is replaced. If the cleaning page is frequently needed, try a different type of media.

LJ 4100 series (continued)

Using the auto-cleaning page

The auto-cleaning page feature helps keep the fuser rollers clean, which maintains excellent output quality. The auto-cleaning page feature is accessible through the control panel and is supported through Web JetAdmin, as well. Once set up, the printer runs a cleaning page through the printer as a separate job at the frequency requested with no further user intervention. The settings can be changed or the feature can be turned off at any time.

Note

When the auto-cleaning page feature is enabled, the printer automatically pulls plain letter- or A4-sized media from a tray. If the media size or types are not available in the printer, a message appears in the control-panel display requesting the user to load paper into the printer.

To override a paper-load message, press **Go**, and then answer the questions on the control panel display.

To set up the auto-cleaning page:

1 Press **Menu** until PRINT QUALITY MENU appears.

2 Press **Item** until AUTO CLEANING PAGE appears.

3 Press **Value+** until =On appears, and then press **Select**.

4 Press **Value+** to select the auto cleaning frequency, and then press **Select**.

5 Press **Item** until CLEANING PAGE SIZE=LETTER or A4, and then press **Value+** to select the media size to be used for cleaning.

6 Press **Select** to save the auto-cleaning settings.

The auto cleaning page takes about 2.5 minutes to process and will only occur between job boundaries when the printer is idle.

Image defect table

For more information, go to the page numbers provided below each image.
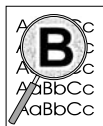
Background scatter (see page 246)	Black pages (see page 246)	Blank page (see page 247)	Blank spots (see page 248)
Bottom of page is blank or graphic image is cut off (see page 248)	Character voids (see page 248)	Curl or wave (see page 249)	Creases or wrinkles (see page 249)
Dirt on back of page (see page 249)	Distorted image (see page 250)	Dropouts (see page 250)	Faded print or bubbles (see page 251)
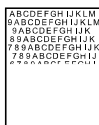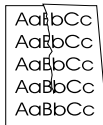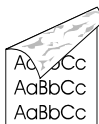
9

AaBbCc	AaBbCc	AaBbCc	AaBbCc
Ghosting (light) (see page 251)	Ghosting (dark) (see page 251)	Gray background (see page 252)	Horizontal black lines or smears (see page 252)
AaBbCc		AaBbCc	AaBbCc
Horizontal smudges (see page 253)	Horizontal white lines (see page 253)	Light print, dark print, faded print (see page 253)	Loose toner (see page 254)
AaBbCc	AaBbCc	AaBbCc	AaBbCc
Misformed characters (see page 254)	Outgoing faxes/ copies/scanned images are too light or too dark (see page 254)	Parts of the page around the edges are not printing (see page 255)	Print is faded or vertically aligned white streaks are apparent (see page 255)
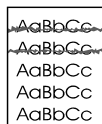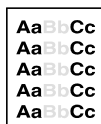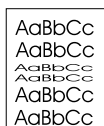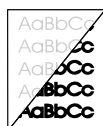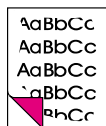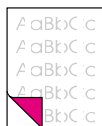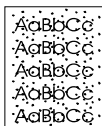
AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc
Random black spots or toner specks (see page 256)	Repetitive defects (see page 256)	Scanned images have black dots or streaks in top and bottom margins (see page 256)	Scanned images print at reduced size (see page 257)
AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc
Scanned text is unclear (see page 257)	Skewed print (see page 257)	Tire tracks (see page 258)	Toner smear (see page 258)
AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc	AaBbCc AaBbCc AaBbCc AaBbCc AaBbCc		
Vertical black lines (see page 258)	Vertical dots (see page 259)	Vertical white lines (see page 259)	White spots on black (see page 259)
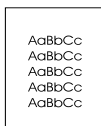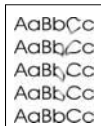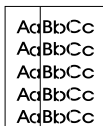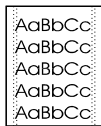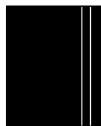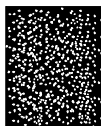
9

Image defect details

Background scatter

- The media does not meet HP specifications.
- The toner cartridge is defective.
- The inside of the printer is dirty.
- The transfer roller is dirty or worn.
- The pickup roller is dirty.
- Generate a cleaning page.

Black pages

- The toner cartridge was improperly installed.
- The primary charging roller is defective.
- The laser/scanner assembly is faulty (turning laser on continuously).
  - The connectors between the laser/scanner unit and the ECU or DC controller PCA are not seated properly or are defective. Reseat the controller unit or PCA.
  - The high-voltage power supply connections are dirty. Clean the connections.
- The high-voltage power supply is installed improperly. If the high-voltage power supply has been removed and replaced, it might not be seated properly.
  - Reseat the high-voltage power supply.
  - Check the ECU for damage.

Blank pages

- Your software program is sending an extra page-eject command.
  - Check the software's printing configuration information.
- The printer might be feeding two or more pages at once because the media is difficult to separate.
- The sealing tape has been left in the toner cartridge.
- The toner cartridge is empty or defective.
- The laser/scanner door does not open properly.
  - Remove and reseat the toner cartridge.
  - Check the laser/scanner shutter door for proper operation.
- The toner cartridge guide is damaged, improperly positioned, or missing.
- There is no transfer roller voltage.
  - Perform the Half Self-Test Functional Check to check all other electrophotographic processes.
  - Replace the transfer roller if necessary.
  - Check the ECU.
- Discontinuity exists in the high-voltage contact points.
- There is no developing bias.
  - Clean the high-voltage power supply contacts. With no developing bias charge, toner is not attracted to the drum.
  - Replace the ECU.
- There is no drum ground path.
  - Check the drum ground.
  - Replace the ECU.
- The laser/scanner cable assembly is defective.
- The page length and margins are not set correctly for the media size.

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Blank spots

- The media does not meet HP paper specifications or is stored improperly.
- The toner cartridge is defective.
- The transfer roller is dirty or defective.

Bottom of page is blank or graphic image is cut off

- The page is too complex. (There is not enough memory to process the page.)
    - Reduce the resolution through the software or printer driver. See the online help for printer driver issues.

Character voids

- Use media that meets HP paper specifications.
    - The surface of the media is too rough or the media's surface is too smooth for proper toner adhesion.
    - The moisture content of the media is too high.
    - Printing is on the wrong side of the media.
    - The transparencies are not designed for proper toner adhesion.
- The printer driver is not set for the correct media.
- The fuser is defective.
    - Check for a wrap jam in the fuser.

Curl or wave

- The media does not meet printer specifications or is stored improperly.
- The media is not loaded correctly or the trays are not adjusted properly.
- The operating environment does not meet specifications.
- The fuser temperature is incorrect.*
- The wrong output bin is selected.
- The registration assembly is improperly installed.

*This feature does not apply to all product.

Creases or wrinkles

- The media does not meet printer specifications or is stored improperly.
- The media is not loaded correctly.
- The wrong output bin is selected.
- The wrong tray is selected.
- There is a jam in the paper path.

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Dirt on back of page

- The inside of the printer is dirty (tray separation roller, feed roller, fuser, transfer roller, toner cartridge, feed belt, feed guide, or fuser entrance guide).
- Print a cleaning page.
- The media does not meet HP paper specifications or is stored improperly.

Distorted image

- The media does not meet HP paper specifications or is stored improperly.
- The printer operating environment does not meet HP specifications.
- The wrong output bin is selected.
- The connection of the cables to the laser/scanner is poor.
- The connection of the cables to the ECU is poor.
- The laser/scanner is defective.
- The ECU is defective.

Dropouts

- A single sheet of paper is defective.
- The print density needs to be adjusted.
- The moisture content of the media is uneven, or the media has moist spots on it.
- The media lot is bad.
- A draft mode or economy mode is selected in the software.
- The fuser setting was wrong for the media type.*
- The toner cartridge is defective.

*This feature does not apply to all products.

Faded print or bubbles

- The toner cartridge is empty or defective.
- The draft mode or economy mode is selected in the software.
- The media does not meet HP paper specifications or is stored improperly.
    - Check the ground path.
    - Replace the ECU.

Ghosting (light)

- The media does not meet HP paper specifications (for example, the defect might occur when preprinted forms are used).
- A large quantity of narrow media has been printed.
    - If the defect occurs later in a print job, turn the printer off for ten minutes, and then turn the printer on to restart the print job.
- The fuser mode is set too high.*

*This feature does not apply to all products.

Ghosting (dark)

- The media does not meet HP paper specifications (for example, the defect might occur when preprinted forms are used).
- A large quantity of narrow media has been printed.
    - If the defect occurs later in a print job, turn the printer off for ten minutes, and then turn the printer on to restart the print job.
- The fuser mode is set too high.*

*This feature does not apply to all products.

9

Gray background

- The priority input tray is not in place.
- The toner density is set incorrectly.
- The media basis weight is too high.
- The humidity level is too low.
- The toner cartridge is defective.

Horizontal black lines or smears

- The media does not meet HP paper specifications or is stored improperly.
- The laser/scanner assembly or ECU is defective.
- The toner cartridge is defective or it was improperly installed.
- The printer needs to be cleaned.
- The fusing assembly is dirty or defective.
- A gear is damaged.
- A roller is damaged.

3100 and 3150 series only

- Horizontal lines appear in the margins and across entire pages of faxes, copies, and scans.
  - Clean the contact image sensor.
  - Recalibrate the scanner.
  - Check for a problem in the contact image sensor.

Horizontal smudges

- The media does not meet HP paper specifications or is stored improperly.
- The paper path is dirty or damaged.
- Print a cleaning page.

Horizontal white lines

- The toner cartridge could be defective or low on toner.
- The toner cartridge has been exposed to too much light.
- Review the repetitive defect ruler.
- The fusing assembly is dirty or defective.
- The laser/scanner assembly is dirty or defective.
- The ECU could be faulty.

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Light print, dark print, faded print

- The toner density setting is incorrect.
- The toner cartridge is empty or defective.
- The toner cartridge requires cleaning.
- The transfer roller is defective or dirty.
- The media does not meet HP paper specifications or is stored improperly.
- The laser/scanner is defective.
- The ECU is defective.
- The high-voltage power supply is defective.

Loose toner

- The inside of the printer is dirty, print a cleaning page.
- The toner cartridge is defective.
- The media is too smooth.
- The fuser setting is wrong for the media type.*
- The fusing assembly is defective or dirty.
- The printer driver is not set for the correct media.

*This feature does not apply to all products.

Misformed characters

- The media is too smooth.
    - Print a few more pages to see if the problem corrects itself.
- The printer operating environment does not meet HP specifications.
- Maintenance is due.
    - Print a copy of the supplies status page, and install the printer maintenance kit.*

*This feature does not apply to all products.

Outgoing faxes/copies/scanned images are too light or too dark

1200, 3100, 3150, and 3200 series only

- Recalibrate the scanner.
- The contrast is not set correctly.
- The original image is very light or very dark.
- The scanned image is too light or too dark because the original was on colored media.

Parts of the page around the edges are not printing

1200 series only

- The reduction setting is set incorrectly.
- The product cannot print to the edge of the media. The product has minimum margins on each edge of 4.23 mm (0.17inch).

3100, 3150, and 3200 series only

- The reduction setting is set incorrectly.
- The product cannot print to the edge of the media. The product has minimum margins on each edge of 6.4 mm (0.25 inch).

Print is faded or vertically aligned white steaks are apparent

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- The toner cartridge is empty or defective.
- The media does not meet HP paper specifications.
- The product needs to be cleaned.
- The toner density setting is not adjusted correctly.
- The laser/scanner is damaged or defective.
- The internal mirror or optics are dirty.

3100, 3150, and 3200 series only

- The contact image sensor needs to be cleaned.
- The document scanner needs to be recalibrated.
- The contact image sensor is damaged.
- The formatter is damaged or defective.

Random black spots or toner specks

• The media you are using does not meet HP paper specifications.

• You are printing on the wrong side of the media.

• The paper path is dirty.

• The transfer roller is dirty.

• The toner cartridge is damaged or defective.

• Print the cleaning page.

Repetitive defects

• The media does not meet HP paper specifications.

• The toner cartridge is defective or damaged.

• The printer driver is not set for the correct media.

• The internal parts have toner on them.

• A component inside the printer is damaged.

   – Use the repetitive defect ruler to determine the defective component.

• The gears are worn, causing slippage or jumping.

• The fuser mode is set too high.*

• The fuser is damaged or defective.

*This feature does not apply to all products.

Scanned images have black dots or streaks in top and bottom margins

1200, 3100, 3150, and 3200 series only

• There is ink, glue, white-out, or some other substance on the contact image sensor.

   – Recalibrate the document scanner.

• There is a problem in the contact image sensor.

   – Replace the contact image sensor.

Scanned images print at reduced size

1200 series only

- The HP software settings are set to reduce the scanned image.
  - Adjust the settings in the HP LaserJet Director or HP Document Manager.
  - Adjust the Quick Copy settings.
  - Adjust the settings in the HP LaserJet Copier software.

3100 and 3150 series only

The JetSuite Pro software automatically reduced the image to fit it on the page.

Scanned text is unclear

1200, 3100, 3150, and 3200 series only

- The contrast, resolution, or brightness needs to be adjusted before scanning.
- The original is on colored media.
- There is a problem in the contact image sensor.
  - Replace the contact image sensor.

Skewed print

- The media weight or surface finish does not meet HP specifications.
- The media is not loaded correctly or the trays are not properly adjusted.
- The printer operating environment does not meet HP specifications.
- The paper-input tray is overfilled.
- The guides are adjusted improperly.
- The wrong output bin is selected.
- The registration assembly is improperly installed.

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Tire tracks

• The toner cartridge is worn out.

Toner smear

• If the toner smears appear on the leading edge of the media, the media guides are dirty.
• The media is too smooth.
• The toner cartridge needs to be replaced.
• The printer needs to be cleaned.
• The fuser temperature is too low.*

*This feature does not apply to all products.

Vertical black lines

• The toner cartridge is dirty, defective, or not seated properly.
• The priority input tray is not in place.
• The fuser entrance guide is dirty.
• The fuser assembly is dirty or defective.
• The fuser is scratched.
• The fuser film is worn.
    – Set the fuser to a lower temperature mode.*
    – Replace the fuser.
• Use the repetitive defect ruler to determine the defective component.
• The printer needs to be cleaned.

*This feature does not apply to all products.

1200, 3100, 3150, and 3200 series only

• There is ink, glue, white-out, or some other substance on the contact image sensor.
• Slick media caused trouble during scanning.
• The product needs to be recalibrated.

Vertical dots

- The static eliminator teeth are dirty.
- There is poor contact between the static eliminator and the ECU.
- The transfer roller is dirty or defective.
- The ECU is defective.

Vertical white lines

- The media does not meet HP specifications.
- The toner cartridge is empty or defective.
- The fuser is defective or dirty.
- The laser/scanner assembly is defective or dirty.

1200 series only

- The platen is dirty.

9

White spots on black

- The media does not meet HP specifications.
- The toner cartridge is damaged or defective.
- The printer operating environment does not meet HP specifications.

LJ 1200 series repetitive defect ruler

First occurrence of print defect

Toner/developing cylinder (37.7 mm)
Toner/primary charging roller (37.7 mm)

Transfer roller (45.2 mm)

Heating element (56.5 mm)

Pressure roller (62.8 mm)

Toner/drum (75.4 mm)

Notes

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LJ 2200 series repetitive defect ruler

First occurrence of defect

Primary charging roller (38 mm)

Developing cylinder (42 mm)
Feed roller (42 mm)

Registration roller (44 mm)

Transfer charging roller (46 mm)

Pressure roller (62 mm)

Fuser roller (75 mm)

Photosensitive drum (94 mm)

Notes

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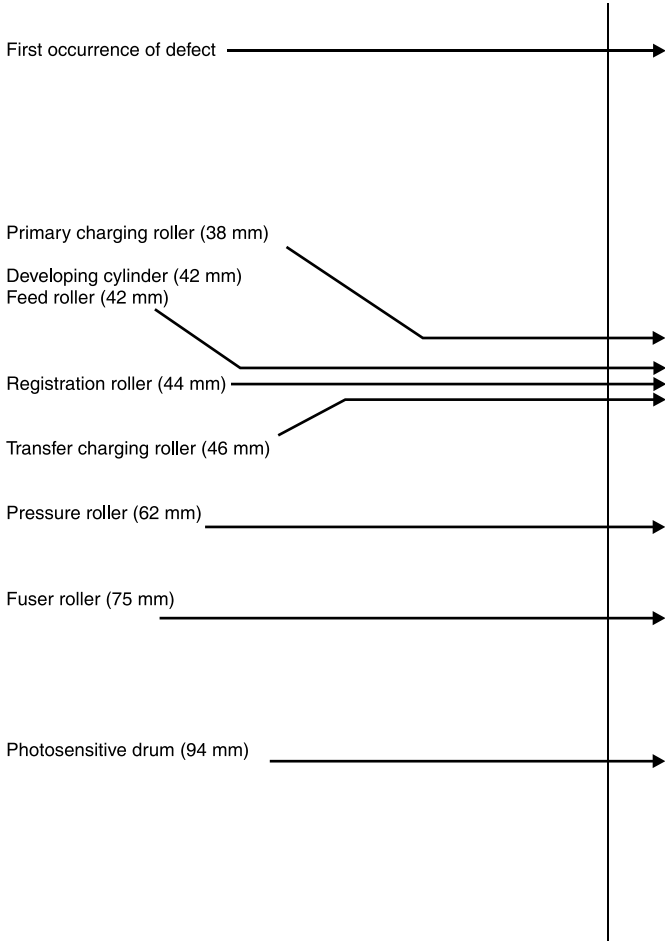
LJ 3100 and 3150 series repetitive defect ruler

First occurrence of print defect

Developing cylinder (32 mm)

Primary charging roller (38 mm)

Delivery roller (44 mm)

Transfer roller (48 mm)

Pressure roller (64 mm)

Upper heating element film (76 mm)

Toner cartridge photosensitive drum (76 mm)

Notes

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LJ 3200 series repetitive defect ruler

First occurrence of print defect

Developing cylinder (32 mm)

Delivery roller (37.7 mm)

Primary charging roller (38 mm)

Transfer roller (45 mm)

Pressure roller (62.8 mm)

Upper heating element film (76 mm)

Toner cartridge photosensitive drum (76 mm)

Notes

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LJ 3200 series repetitive defect ruler   **267**

LJ 4100 series repetitive defect ruler

First occurrence of print defect ⸻⸻⸻⸻➤

Toner cartridge primary charging roller (38 mm)
Developer roller (38 mm) ⸻⸻⸻⸻➤

Transfer roller (47 mm) ⸻⸻⸻⸻➤

Feed roller (50 mm) ⸻⸻⸻⸻➤
Registration roller (50 mm)

Fuser pressure roller (63 mm) ⸻⸻⸻⸻➤

Fuser upper hot roller (75 mm)
Separation roller (75 mm) ⸻⸻⸻⸻➤
Tray feed roller (75 mm)

Toner cartridge photosensitive drum (94 mm) ⸻⸻⸻⸻➤

Notes

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10 Diagrams

Chapter contents

LJ 1200 series diagram and paper path

LJ 1200 wiring diagram
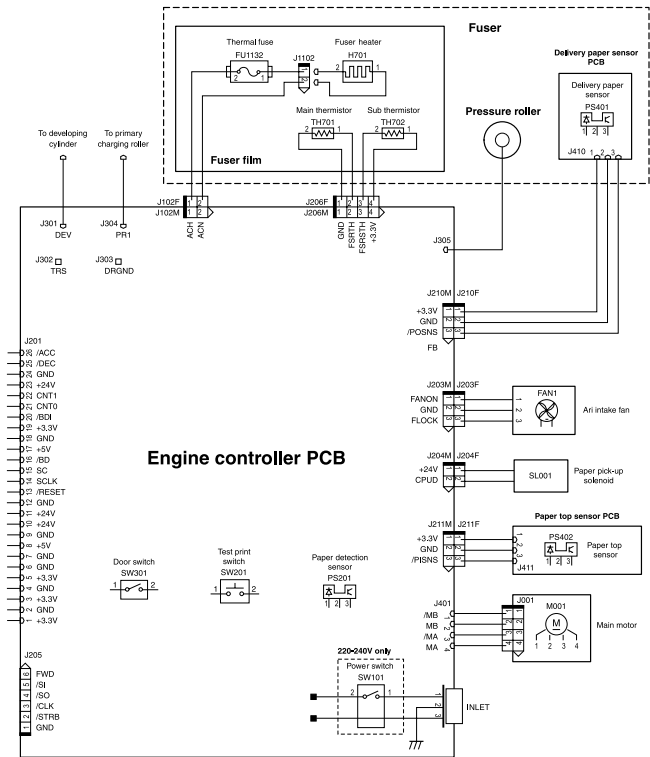
Figure 27   Wiring diagram (HP LaserJet 1200 series, 1 of 2)

LJ 1200 wiring diagram (continued)
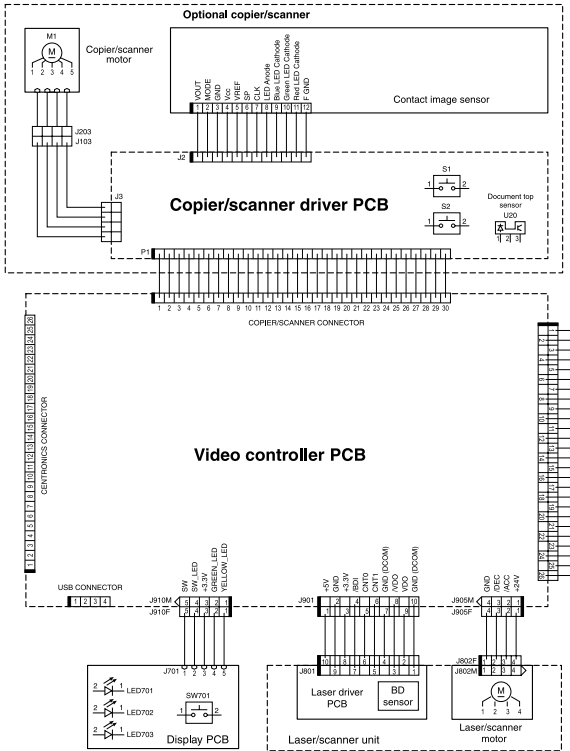
Figure 28   Wiring diagram (HP LaserJet 1200 series, 2 of 2)

LJ 1200 series paper path

Fusing exit photosensor

Top of page sensor
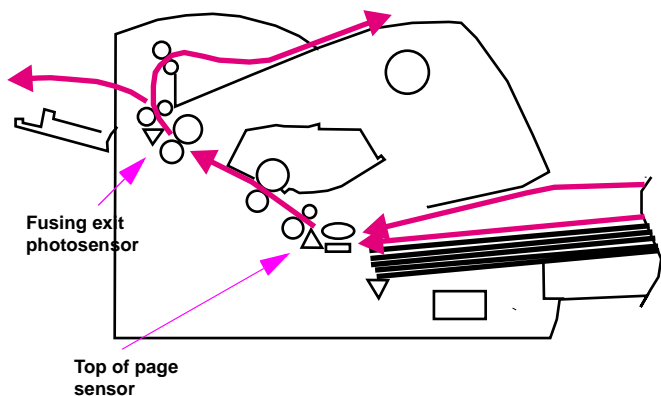
Figure 29   Paper path (HP LaserJet 1200 series)

LJ 2200 series diagram and paper path

LJ 2200 wiring diagram

Figure 30   Wiring diagram (HP LaserJet 2200 series, 1 of 2)
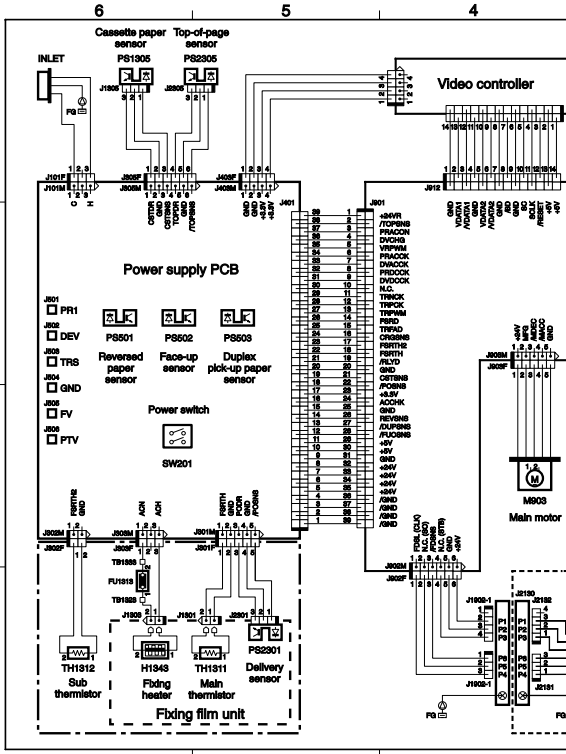
LJ 2200 wiring diagram (continued)
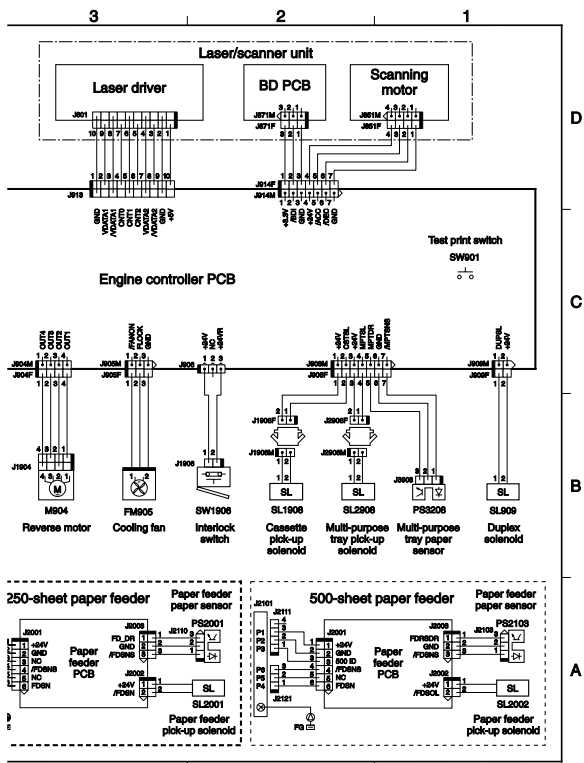
Figure 31   Reference diagram (HP LaserJet 2200 series, 2 of 2)

LJ 2200 series paper path

Top of page sensor

Delivery sensor

Reversed paper sensor

Duplex pickup sensor
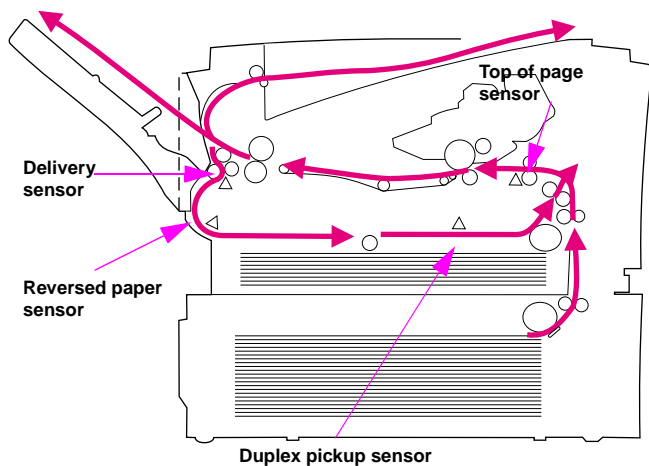
Figure 32   Paper path (HP LaserJet 2200 series)

LJ 3100 and 3150 series diagram and paper path

LJ 3100 and 3150 wiring diagram

Figure 33   Wiring diagram (HP LaserJet 3100/3150 series, 1 of 2)

LJ 3100 and 3150 wiring diagram (continued)

Figure 34   Wiring diagram (HP LaserJet 3100/3150 series, 2 of 2)

LJ 3100 and 3150 series paper path

Top of page sensor

Delivery sensor

Paper top sensor
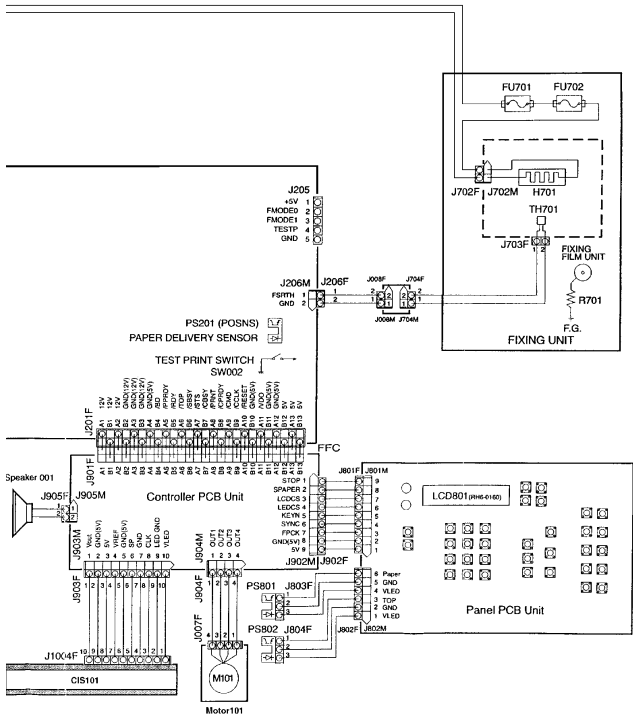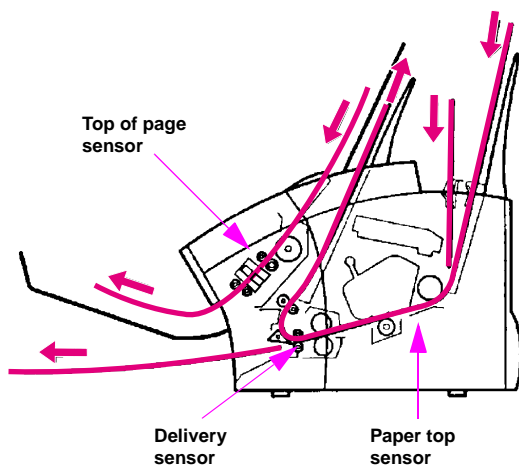
Figure 35   Paper path (HP LaserJet 3100 and 3150 series)

LJ 3200 series diagram and paper path

LJ 3200 wiring diagram
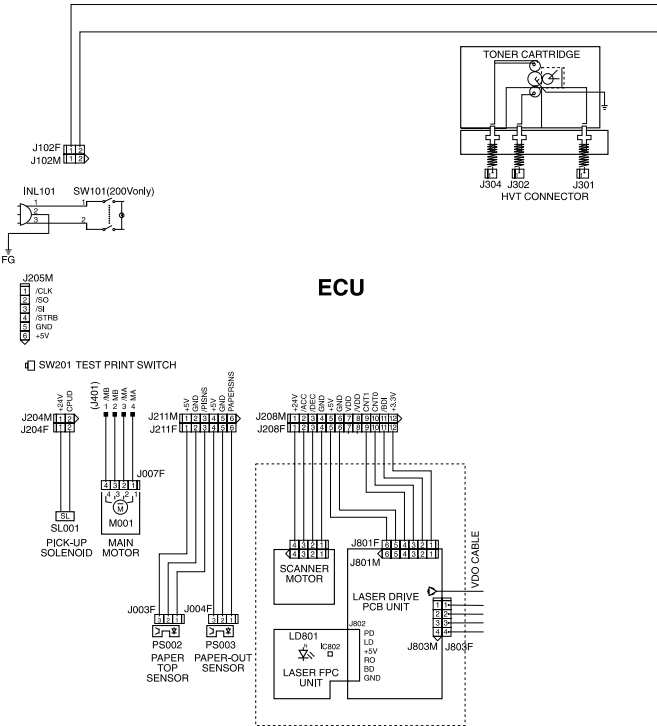
Figure 36   Wiring diagram (HP LaserJet 3200 series, 1 of 2)

LJ 3200 wiring diagram (continued)
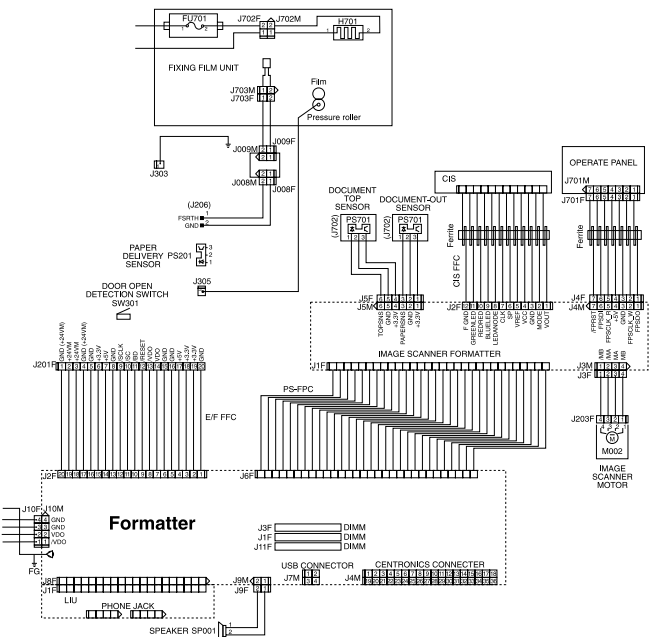
Figure 37   Wiring diagram (HP LaserJet 3200 series, 2 of 2)

LJ 3200 series paper path

**Top of page
sensor**

**Delivery
sensor**

**Paper top
sensor**
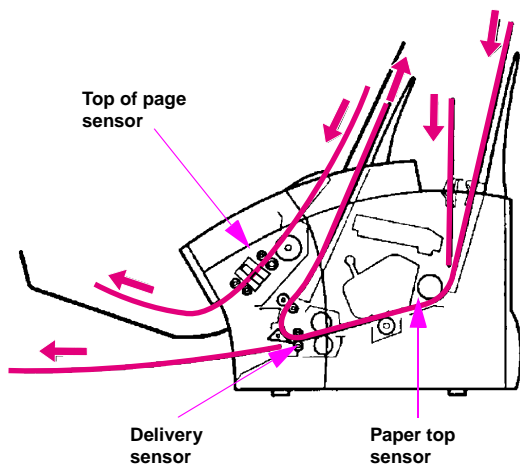
Figure 38   Paper path (HP LaserJet 3200 series)

LJ 4100 series diagram and paper path

LJ 4100 wiring diagram

Figure 39   Wiring diagram (HP LaserJet 4100 series, 1 of 2)

LJ 4100 wiring diagram (continued)

Figure 40   Wiring diagram (HP LaserJet 4100 series, 2 of 2)
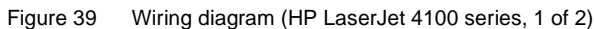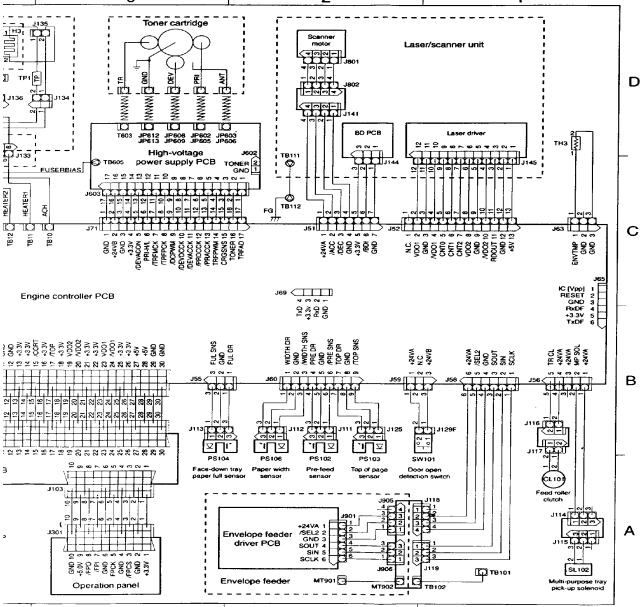
LJ 4100 series paper path
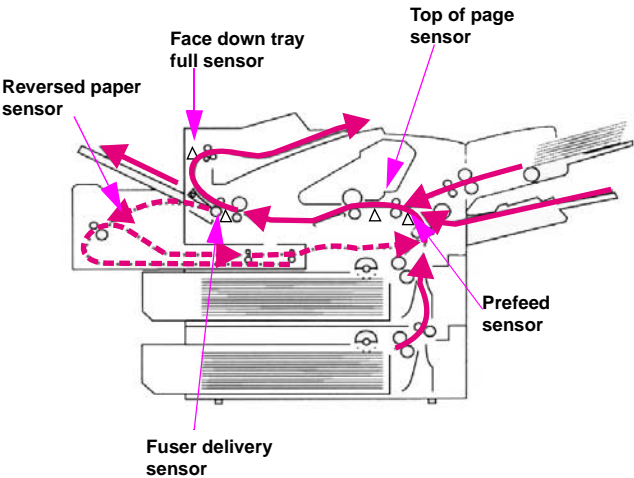
Figure 41   Paper path (HP LaserJet 4100 series)

11 Services and support: resources and training

Chapter contents

How to get training

Lecture and lab training (U.S. only)

Service technicians who want individual, hands-on training can attend regularly scheduled lecture/lab training classes. These classes are offered throughout the country. To receive the latest schedule, see the HP website (http://www.hp.com/go/resellertraining).

Self-paced training kits

Descriptions and part numbers

Product	Description	Part number
All LaserJet Printers	Basic Hardware Training Course (prerequisite for all LaserJet service training)	5081-9469
	Paper Training Video	5961-0711 (NTSC) 5961-0712 (PAL)
LJ 1200/1220	HP LaserJet 1200/1220 Service and Support CD-ROM	C7044-60107 (English only)
LJ 2200	HP LaserJet 2200 Service and Support CD-ROM	C7058-60105 (English only)
LJ 3100/3150	HP LaserJet 3100/3150 Service and Support CD-ROM	C4256-60102 (English only)
LJ 3200	HP LaserJet 3200 Service and Support CD-ROM	C7052-60107 (English only)
LJ 4100	HP LaserJet 4100 Series Printers Training Kit	C8049-67902 (English only)

Support resources

HP direct ordering for genuine HP parts

Customer Services and Support Organization (CSSO):

- (1) (800) 227-8164 (U.S. only)
- 1 (800) 387-3154 (Canada only)

Consumables

Consumables and accessories can be ordered from Hewlett-Packard. The phone numbers are:

U.S.: (1) (800) 538-8787
Canada: (1) (800) 387-3154
(Toronto) (516) 671-8383
United Kingdom: 0734-441212
Germany: 0130-3322

Contact your local HP Parts Coordinator for other phone numbers.

World Wide Web

Printer drivers, updated HP printer software, and product and support information can be obtained from the following URL:
in the U.S., http://www.hp.com/go/support

Printer drivers can be obtained from the following sites:

in Japan, ftp://www.jpn.hp.com/support
in Korea, http://www.hp.co.kr/support
in Taiwan, http://www.dds.com.tw

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HP service parts information compact disc

This powerful, CD-ROM-based parts information tool is designed to give users fast, easy access to parts information and recommended stocking lists for a wide range of HP products. To subscribe to this quarterly service in the U.S. or Canada, call (1) (800) 336-5987. In Asia Pacific, call (65) 740-4484. Parts identification and pricing information can also be found on the World Wide Web at: http://www.hp.com/go/partsinfo

HP support assistant compact disc

This support tool offers a comprehensive online information system designed to provide technical and product information about Hewlett-Packard products. To subscribe to this quarterly service in the U.S. or Canada, please contact your local customer care center.

Customer care reseller sales and service support center

The Customer Care Reseller Sales and Service Support Center is available to assist re sellers and service technicians. To reach this support center, call (1) (800) 544-9976.

HP authorized re sellers and support

To locate authorized HP re sellers and support, call
(1) (800) 243-9816 in the U.S. or (1) (800) 387-3867 in Canada.

HP service agreements

Call (1) (800) 743-8305 in the U.S. or (1) (800) 268-1221 in Canada.

Other areas

Outside of North America and Europe, contact the local HP sales office for assistance in obtaining technical support for re sellers and service technicians.

A Acronyms and abbreviations

Acronyms and abbreviations

AC	Alternating current
AMP	Amperes
AUTOCONT	Automatic continue
BNC	A 10-Base 2 connector used with coaxial cables
CE	Customer engineer
CFG	Configuration on control panel
CPU	Central processing unit
CSSO	Customer Services and Support Organization
DC	Direct current
DCPS	Direct current power supply
DIMM	Dual inline memory module
DOS	Disk operating system
DPI	Dots per inch
DTR	Data terminal ready
DTR LINE	Data terminal ready line
ECU	Engine control unit
EIO	Enhanced input/output

Acronyms and abbreviations (continued)

EP	Electro-photographic
EPH	External paper handling
FIR	Fast infrared receiver
FRU	Field replacement unit
FTP	File transfer protocol
HP ASAP	Hewlett-Packard Automated Support Access Program
HP FIRST	Hewlett-Packard Fax information retrieval support technology
HP-GL/2	Hewlett-Packard graphics language
HTML	Hypertext markup language
HTSL	Hardware Technical Support Center
HV	High voltage
HVPS	High-voltage power supply
I/O	Input/output
IR	Infrared
IrDA	Infrared Data Association
IRQ	Interrupt request
J	Japanese
JEIDA	A type of memory module
JIS	Japanese Industry Standard
JOBID	Print job identification
JP	Jobpack
LAN	Local area network
LC PICKUP ROLLER	Lower-cassette pickup roller
LED	Light-emitting diode

Acronyms and abbreviations (continued)

LIU	Line interface unit
LVPS	Low-voltage power supply
MB	Megabyte
MEM	Memory
MIO	Modular input/output
MP PICKUP ROLLER	Multipurpose tray pickup roller
MP Tray	Multipurpose tray
MS-DOS	Disk operating system
MSDS	Material safety data sheets
NTSC	National Television Standard Committee
NVRAM	Nonvolatile random-access memory
Ohm	A unit of measure of electrical resistance
PAL	Phase alternation line format
PCA	Printed-circuit assembly
PCB	Printed circuit board
PCL	Printer command language
PC PICKUP ROLLER	Paper-cassette pickup roller
PDA	Personal digital assistant
PIU	Paper input unit
PJL	Printer job language
RAM	Random-access memory
RIP	Raster image process
ROM	Read-only memory
SIMM	Single inline memory module
SMO	Support materials organization

A

Acronyms and abbreviations (continued)

SMODE	Service mode
SPEC	Specifications
SRVR	Server
TCP/IP	Transmission control protocol/Internet protocol
TS	Thermoswitch
UNIX®	Network operating system using TCP/IP protocol
URL	Universal resource locator
V	Volt
VAC	Volts alternating current
VDC	Volts direct current

Index

Supported Products

hp LaserJet 1200/1200N/1200SE printers
hp LaserJet 1220/1220SE
hp LaserJet 2200D/2200DT/2200DN/2200DTN/2200DSE
hp LaserJet 3100
hp LaserJet 3150
hp LaserJet 3200/3200M/3200SE
hp LaserJet 4100/4100N/4100TN/4100DTN

www.hp.com/support/laserjet

5961-0953